RELATIONSHIPS BETWEEN ACCOUNTABLE CARE ORGANIZATIONS AND SKILLED NURSING FACILITIES: WHAT ARE THE CRITICAL PROCESS ELEMENTS?

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ABSTRACT

Lisa Shock: Relationships Between Accountable Care Organizations and Skilled Nursing Facilities: What Are the Critical Process Elements? (Under the direction of Sandra Greene)

Accountable care organizations (ACOs) have an incentivized Centers for Medicare and Medicaid Services (CMS) contractual agreement to ensure that attributed Medicare patients receive cost-efficient, high-quality care. It is hypothesized that relationships between ACOs and skilled nursing facilities (SNFs) may correlate with positive patient outcomes for cost and quality. Contractual elements are defined as specific processes and procedures measured by outcome metrics. Readmissions, length of stay (LOS), and episodic cost of care are potential outcome markers to assess SNF care delivery quality.

This study aimed to define critical relationship provisions between ACOs and SNFs that influence patient health outcomes. A value-based ACO and CMS contract, which defines accountability for a specific population and includes metrics examining cost and quality, was hypothesized to lead the ACO to develop processes and procedures resulting in meaningful SNF improvements, including LOS, Emergency Department (ED) utilization, and hospital readmission rates. An ACO/SNF contractual relationship within a preferred network was also hypothesized to correlate with operational process and procedural changes resulting in reduced LOS, improved hospital and SNF readmission rates, and decreased ED utilization.

A systematic literature review explored relationships between ACOs and SNFs, examined elements and provisions of contracted relationships, and identified potential correlations to cost of care, SNF care quality, and health outcomes. The current literature demonstrates limited positive outcomes, defined as reduced readmission rates and post-acute savings per beneficiary, when care is delivered at a SNF with an ACO relationship.

A mixed-methods approach utilized qualitative and quantitative data collected from ACO health systems nationwide in two stages: (1) analysis of qualitative data collected through key informant interviews with leaders from ACOs, health systems, and community SNFs within each community intended to reveal important provisions to include in a ACO/SNF relationship; and (2) quantitative data analysis performed using existing SNF utilization reports to evaluate elicited themes around people, data, and education as evidenced by ACO network processes and operations. These ACO activities, performed with preferred SNFs, were directionally correlated with utilization outcomes. Additional research is needed to understand the specific contract provisions positively associated with reductions in patient-level cost, readmissions, and LOS.

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LIST OF ABBREVIATIONS

ACO	accountable care organization
CFIR	Consolidated Framework for Implementation Research
CMI	case mix index
CMS	Centers for Medicare and Medicaid Services
EBP	evidence-based practice
ED	Emergency Department
IRB	institutional review board
LOS	length of stay
MDS	minimum data set
MSSP	Medicare Shared Savings Program
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
SNF	skilled nursing facility

CHAPTER 1: BACKGROUND

The need to control excess health care spending in the United States has led to new, innovative payment models under the Centers for Medicare and Medicaid Services (CMS). With the passage of the Affordable Care Act, one such model is the accountable care organization (ACO). ACOs are defined as health care entities that demonstrate efforts to reduce fee-for-service Medicare spending through care and cost improvement efforts (Pham, Cohen, & Conway, 2014). The ACO may be composed of any combination of hospitals, health systems, and independent physician associations under an ACO governance structure delivering coordinated care. Driven by a focus on value-based care, ACOs have proliferated nationwide (Fisher & Shortell, 2010).

ACOs promote collaboration around cost and quality between physicians, hospitals, and other clinicians, along with community health care organizations. Through the development of processes designed to improve quality and slow spending growth for a defined population of Medicare beneficiaries, new relationships and collaborations result in new models of care delivery and collaboration (Fisher & Shortell, 2010).

In order to be successful, hospitals and physicians participating in shared savings programs via ACOs will need to establish meaningful partnerships with all types of providers, including post-acute care providers. Post-acute care, including long-term hospital care, rehabilitation care, and skilled nursing facility (SNF) care, is notably the fastest growing major health care spending category, accounting for a significant proportion of growth from 1994 to 2009 (Chandra, Dalton, & Holmes, 2013). A 2013 Institute of Medicine report showed that most of the variation in total health care spending among geographic areas is attributable to variation

in the utilization of post-acute care and inpatient services (Newhouse & Garber, 2013). Partnerships with SNFs are particularly critical, since they account for about half of Medicare's post-acute care spending (Mechanic, 2014).

SNFs are defined as residential settings for people who have compromised their activities of daily living and require 24-hour clinical care. While the term "nursing home" is often used loosely, not all nursing homes are SNFs. To qualify as a SNF, the facility must meet federal criteria for Medicaid and Medicare reimbursement for nursing care, including the following: the supervision of the care of every patient by a physician, the employment full-time of at least one registered nurse, the maintenance of records concerning the care and condition of every patient, the availability of nursing care 24 hours a day, the presence of facilities for storing and dispensing drugs, the implementation of a utilization review plan, and overall financial planning including an annual operating budget and a 3-year capital expenditures program (Centers for Medicare and Medicaid Services, 2018c; Merriam Webster, 2017). As many SNFs are community based or corporate owned, even today there is often no pre-existing relationship between a physician organization or hospital system and a SNF. As ACOs have become more prevalent nationwide as a vehicle for coordination of clinical care, there is an increased effort to create preferred networks of post-acute providers between ACOs and their geographic community in an effort to save money and improve quality through better management of post-acute care, ensuring that patients are treated in the most cost-effective, clinically appropriate setting (Mechanic, 2014).

According to McWilliams et al. (2017), participation in the Medicare Shared Savings Program (MSSP) has been associated with significant reductions in post-acute spending without "…ostensible deterioration in quality of care. Spending reductions remained consistent with

clinicians working within hospitals and SNFs to influence care for ACO-attributed patients" (p. 518).

Defining quality within the SNF setting is challenging due to many nuances that may ultimately influence outcomes. The development of processes and procedures that lead to specific changes in health care delivery is hypothesized to influence outcomes such as length of stay (LOS) and readmission rates. Operationalizing "quality" from standard definitions can be problematic, as the definitions are extremely general and subjective and resulting measures are unable to fully realize the quality concept (Castle, Zinn, Brannon, & Mor, 1996). Due to this inability to adequately realize and define "quality" in nursing homes, quality indicators are prevalent rather than quality measures. This helps denote a less precise association between the "indicator" and actual quality (i.e., they are surrogate measures) (Castle & Ferguson, 2010).

Donabedian (1988) proposed that quality could be measured in terms of structures (S), processes (P), and outcomes (O) (Castle & Ferguson, 2010). Structural (organizational) measures are the organizational characteristics associated with the provision of care. Process measures are characteristics of things done to and for the resident. Outcome measures are the desired states one would (or would not) like to achieve for the resident (Castle & Ferguson, 2010). ACOs can influence quality of care delivery by implementing specific processes and procedures within the ACO/SNF relationships created within their geography. Within these operational partnerships, a network of SNFs that are preferred partners with the ACO develops through this increased collaboration.

Aside from geographic location, ACOs focus on three basic characteristics when considering SNF partners: capacity to effectively care for complex Medicare patients, ability to provide efficient, high-quality care, and willingness to actively collaborate on care delivery

(Mechanic, 2014). As ACOs work to improve quality and optimize spending, innovation in post-acute care is accelerating and extending into the SNF community (Mechanic, 2014). Contractual participation in MSSP ACOs has been associated with reductions in post-acute spending without reducing quality, primarily through clinician efforts within hospitals and SNFs to influence care for ACO patients (McWilliams et al., 2017).

Process implementation within the ACO relationship has led to reduced SNF spending and has been shown to increase ACO savings rates (Muhlestein et al., 2018). Implementation of specific processes to facilitate coordination of care between hospital and post-acute care settings presents a viable opportunity for ACOs to improve cost performance. The dollars spent per Medicare beneficiary vary greatly among referral regions and there is controversy about the causes of this variation, its effects on quality and outcomes, and what, if anything, should be done about it (Newhouse & Garber, 2013).

ACOs must report quality data to CMS at the end of each performance year. CMS measures every ACO's quality performance using standard methods across four quality domains: patient/caregiver experience, care coordination/patient safety, preventive health, and at-risk populations (Centers for Medicare and Medicaid Services, 2018a). All ACOs report their performance on SNF cost control to the CMS through the ACO-35 Skilled Nursing Facility 30-Day All-Cause Readmission Measure (Centers for Medicare and Medicaid Services, 2016) in addition to reporting performance on a number of other metrics.

Potential for shared savings and financial gain on the part of the ACO is adjusted contractually by CMS through quality performance and measurement of overall total medical expense. This is also known as a value-based contract. The ACO has attributed Medicare patients who are transitioning throughout the health system (home, hospital, or SNF) within a given

geographic area. The ACO has an existing contractual incentive with CMS to ensure that these attributed Medicare patients receive cost-efficient, high-quality care (Centers for Medicare and Medicaid Services, 2017b). Instituting a contractual relationship for patient management between the ACO and a SNF allows for potential improvement in care coordination between the hospital and the chosen SNF discharge setting.

When ACOs are creating preferred partnership networks with community SNFs, leakage outside of the network is a significant concern. As choice of SNF upon discharge is ultimately left to the patient and family, it is increasingly challenging for the ACO to develop relationships with all possible SNFs that their attributed beneficiaries may possibly use. This challenge contributes to the difficulty of ensuring that attributed patients are treated in a high-quality, cost-effective SNF.

Readmissions are one marker for low quality of care delivery within the SNF. A study by Wang et al. (2016) reported that increasing nursing home performance is associated with decreases in community-level risk-standardized readmission rates. One potential pathway for increased SNF performance could match assessment of SNF quality and SNF resources to ensure adequate handling of patient clinical needs upon hospital discharge. Potentially, there would be bidirectional communication of quality and resource capability from the SNF to hospital for every ACO-attributed Medicare patient and, as a result, each patient would be appropriately matched on hospital discharge to a SNF capable of addressing his or her condition with high-quality care and adequate resource delivery.

ACO composition is diverse, with many including some but not all possible hospitals from which attributed patients may be discharged. Often the ACO includes the discharge hospital and the accepting SNF but this is not consistently true. Creation of a contractual relationship, a set of defined expectations and processes, between an ACO and a community SNF, whether

included in the ACO network or not, would define collaboration of care, data exchange, and measurement of quality in the post-acute setting. These relationships, initiated by the ACO as the owner of the responsibility for the attributed patient, may have financial benefits to both parties and are designed to ensure coordinated care that results in lower costs.

Currently, it is unknown what specific elements are critical to include within a relationship between an ACO and a SNF that will result in improved cost, quality, and health outcomes. Examples of possible contractual relationship processes that might influence quality of SNF care would include ACO case management to assess appropriate LOS recommendations and timeliness of communications between the discharging hospital and the ACO. Additional research is needed to understand what contractual processes and provisions are positively associated with reductions in cost, readmissions, and LOS. This research will focus on the relationships between SNFs and ACOs, examine processes used by the ACO to coordinate care within the SNF, and compare outcomes between beneficiaries admitted to SNFs with established ACO relationships to those outcomes for beneficiaries admitted to SNFs outside the preferred ACO post-acute network.

Conceptual Framework

This research study is designed in part to influence patient care transitions as patients are admitted from the acute care hospital to a SNF. A conceptual model was developed as depicted in Figure 1A to show the relationships between the ACO, hospital admission, and the SNF. The transition from hospital to SNF was modeled after the Donabedian (1988) construct of structure-process-outcomes. Glickman, Baggett, Krubert, Peterson, and Schulman (2007) proposed an updated framework for structure in quality improvement emphasizing the importance of organizational attributes.

FIGURE 1A: Conceptual model

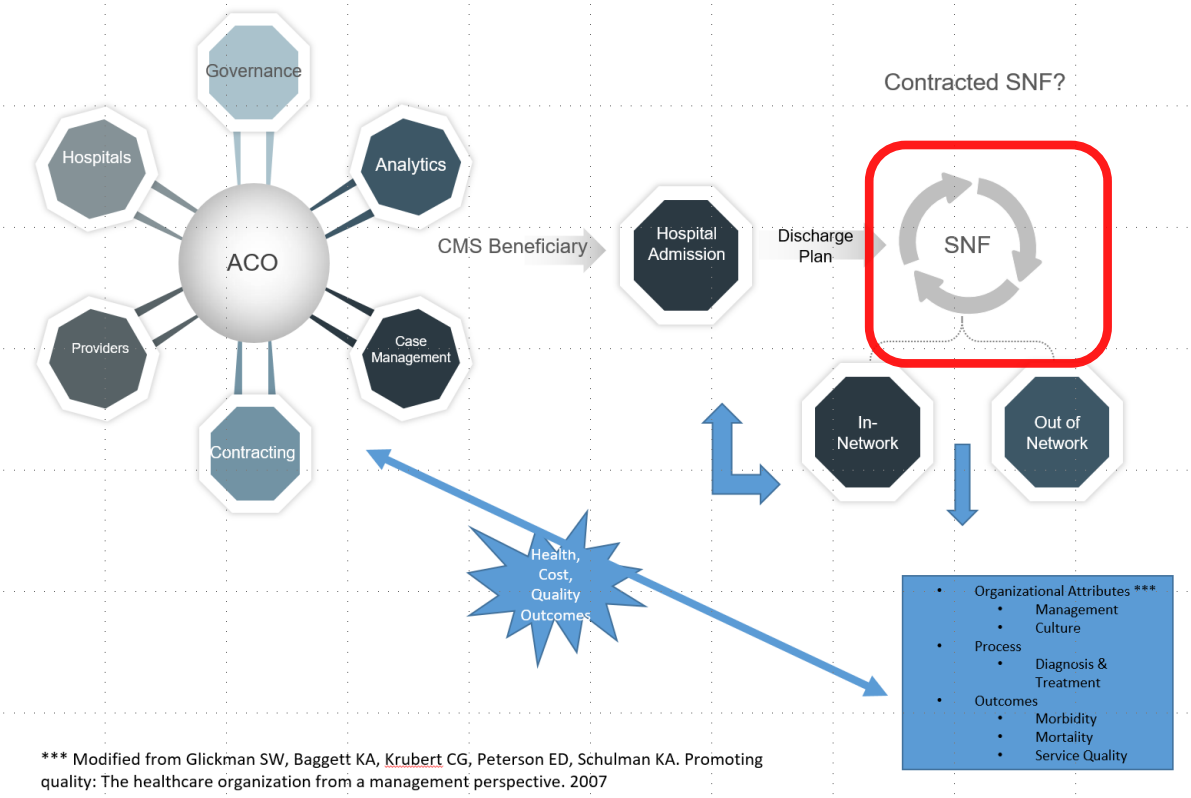
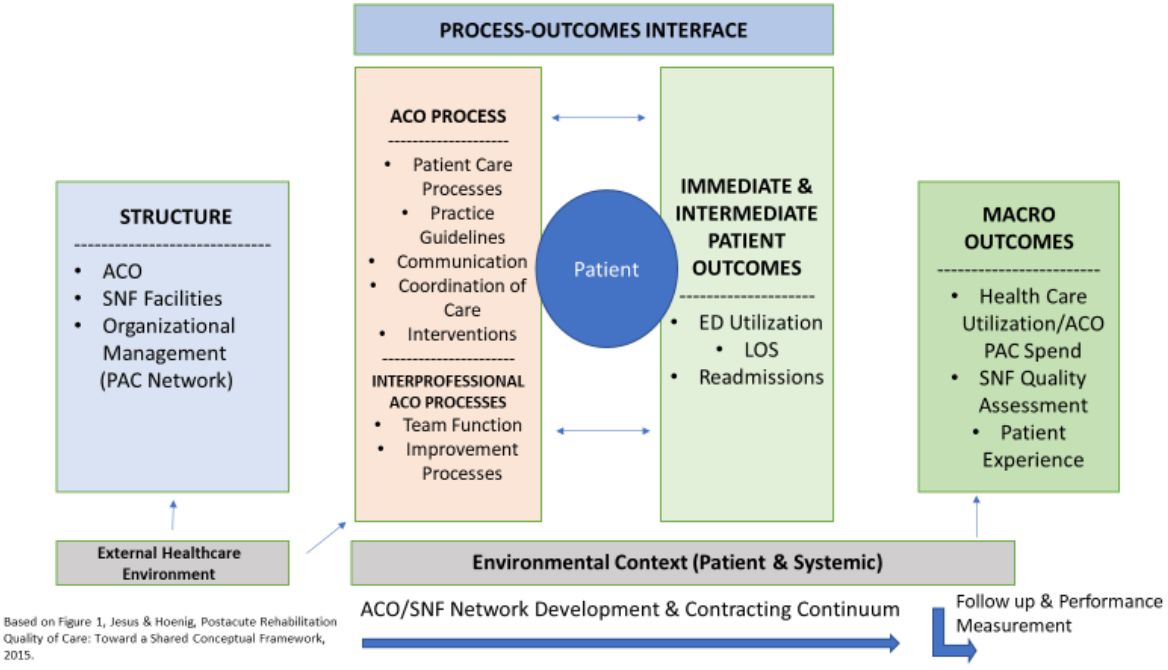


FIGURE 1B: ACO/SNF quality framework



Source: Based on Jesus and Hoenig (2015).

Ultimately, the choice of SNF upon discharge is up to the patient and/or the patient's family. The organizational structure of the SNF in terms of physical environment, management of executive leadership, culture, and information management will all influence the patient experience and will likely influence patient outcomes. The red box noted in Figure 1A is where the second conceptual model around SNF quality is inserted as noted in Figure 1B.

This addition to the model addresses key factors influencing the ACO network structure as well as the process design and outcomes inside the SNF that will influence patient outcomes including LOS and readmission rates. The anticipated barriers and facilitators related to ACO/SNF contract implementation are housed within the process and outcomes interface, which is directly influenced by the ACO/SNF network structure. This adaptation of a post-acute rehabilitation conceptual framework provided the theoretical support for the conceptual model and drove the design of the qualitative research questions within the first portion of this research study (Jesus & Hoenig, 2015).

The inclusion or exclusion of the SNF to which the beneficiary is admitted in the ACO network would be dependent on the ACO/SNF relationships within a given geographic area. After SNF admission, a comparison may be made between SNFs, to assess readmission rates, cost, and quality between the in- and out-of-network SNFs and then assess influence on patient outcomes. Ultimately, a clearer understanding of the organizational attributes and facility processes may provide additional information beyond published SNF quality rankings to allow a more informed consent for the patient at the initial decision point for SNF admission.

The Donabedian (1988) approach to process and outcomes may allow for some estimation of quality within the SNF. Within the Donabedian construct, processes generally include diagnosis, treatment, preventive care, and patient education but may be expanded in

context to include actions taken by patients or their families. Within the Donabedian (1988) model, the measurement of process is nearly equivalent to the measurement of quality of care because process contains all acts of healthcare delivery. This research study sought to understand the critical processes and procedures that, when implemented within a SNF and coordinated by the ACO, influence patient variables of LOS and readmission rates.

Definitions

Definitions of terms used in this work are provided in Table 1. Here, the patient population is specifically defined as Medicare ACO beneficiaries admitted to a SNF. The existence of a contractual relationship will be compared to no relationship or usual activity. The health outcomes measured will be specifically LOS within the SNF and readmission rate from SNF back to the hospital.

TABLE 1: Definitions of terms used

Term	Definition
Accountable care organization (ACO)	Health care organizations that demonstrate efforts to reduce fee-for-service Medicare spending through care improvement (Pham et al., 2014)
Skilled nursing facility (SNF)	A residential setting of care for people who have compromised their activities of daily living and require 24-hour clinical care. SNFs are also referred to as nursing homes
Contractual relationship	A legal contract between an ACO and a SNF that defines collaboration, data exchange, and measurement of quality in post-acute care. These contracts may have financial benefits to both parties and may include specific operational service requirements
Health outcomes	Limited specifically to definitions of length of stay (LOS; the number of days a patient stays in a SNF for a clinical episode of care), readmissions (defined as a bounce-back admission from SNF to hospital), and Emergency Department (ED) utilization
SNF quality of care	Defined as the quality of health care delivery and services provided as measured by publicly available data and health outcomes in the "place" (SNF), which may influence frequency of bounce backs and rates of ED utilization and readmission
Cost of care	Defined as the total cost in dollars linked to the diagnosis at discharge and the LOS inside the SNF

Research Questions and Hypothesis

Do ACO-attributed Medicare beneficiaries discharged to SNFs that have a defined relationship with an ACO have better outcomes than ACO-attributed Medicare beneficiaries discharged to non-contracted SNFs? This mixed-methods study sought to define what specific contract provisions between the ACO and the SNF lead to better outcomes and to identify the process mechanisms by which specific contract relationship provisions lead to better outcomes (e.g., process changes).

It is hypothesized that the presence of a value-based contract between the ACO and CMS, which defines accountability for a specific population and includes metrics examining cost and quality, will lead to creation of a preferred relationship between ACO and SNF which will result in improvements in patient health outcomes of SNF LOS, Emergency Department (ED) utilization, and hospital readmission rates. The presence of a preferred relationship between an ACO and a community SNF will then correlate with operational, ACO-driven process changes at the SNF that result in reduced LOS, improved readmission rates between hospital and SNF, and decreased ED utilization.

CHAPTER 2: LITERATURE REVIEW

Methods

A review of the literature was conducted to address the following research question: Do health outcomes for patients in SNFs that have contractual relationships with ACOs differ from health outcomes for attributed patients admitted to SNFs with no contractual relationship with ACOs? Articles included in this review were obtained from systematic searches of the following databases: PubMed, ProQuest Health Management, SCOPUS, and Web of Science. The following search terms were used to address the definitions above: ("skilled nursing care" OR "skilled nursing facility" OR "nursing home" OR "nursing facilities" OR "long-term care") AND ("accountable care organization" OR "ACO" OR "pay for value") AND "contract" OR "reimbursement" OR "cost" OR "relationship" OR "incentive" OR "Medicare".

Snowballing and citation mining using the key words above helped to build the overall body of literature for this review. Inclusion criteria included full-text articles in English and articles specifically discussing ACOs and post-acute care networks with mention of SNF care. Descriptive and analytical studies were accepted, as were studies containing qualitative or quantitative data. Studies that included the Medicare population as SNF patients and addressed quality of care in that setting were included. Additional studies discussing bounce-back readmissions from SNF to hospital were also included. Articles defining characteristics contributing to LOS in the SNF setting were similarly reviewed.

The following types of articles were excluded: those not addressing accountable care; those discussing nursing as a profession; those with qualitative methods not addressing specific

outcomes of readmission rates from SNF to hospital, cost, or LOS; and those broadly discussing quality metrics without specific mention of skilled nursing or long-term care. Additional exclusions were applied when looking at the SNF as a setting. Studies discussing residents at facilities labeled as rest homes or extended care facilities were excluded, as those settings may not house patients with the same level of clinical acuity and care needs seen in a SNF.

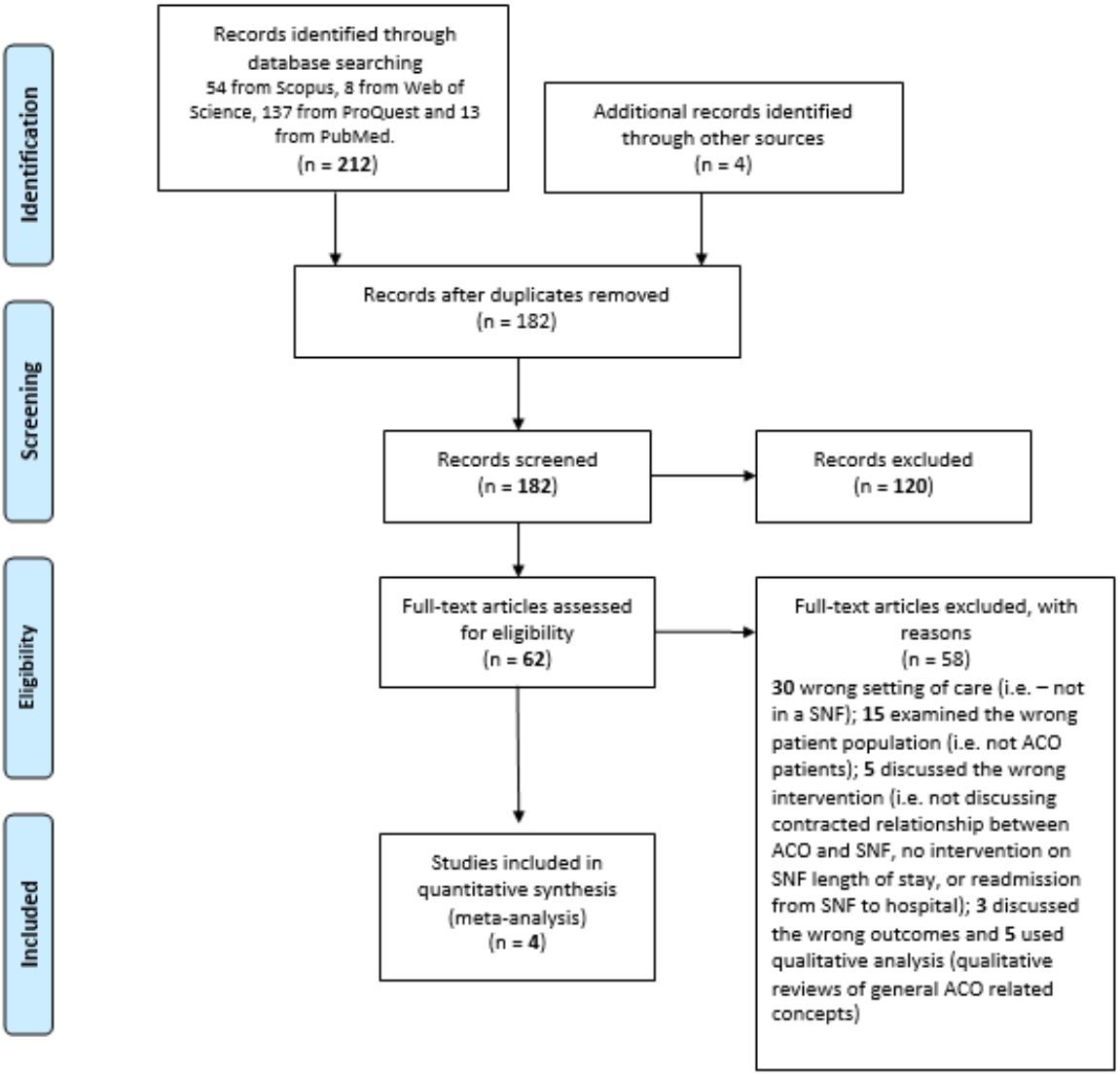
Search results were captured, duplicates were removed, and inclusion and exclusion criteria were applied. Initially, article titles were reviewed to identify studies that provide insight into the research question regarding the association between ACOs and SNFs. Abstracts were then reviewed to assess studies based on inclusion criteria. Additional search terms were factored into the search strategy to define inclusion criteria and included the following: “length of stay” OR “readmissions” OR “quality” OR “patient admission” OR “patient transfer”.

For studies meeting the inclusion criteria, full-text articles were obtained and read. A data abstraction form was created in Excel and catalogued the author, journal name, study design, and study population (Appendix A). As many of the final included articles were health policy perspectives, a second, more stringent quality evaluation was initiated to critically analyze methods, interventions, limitations, conclusions, and quality assessment, including risk of bias across multiple outcome variables (Appendix B). Outcome variables reviewed for bias included the following: incomplete outcome data for contracting, incomplete outcome data for LOS in a SNF, incomplete outcome data for SNF readmissions, incomplete outcome data for ACO patients in post-acute care, and critique of additional sources of bias, including selective outcomes. Full-text articles meeting inclusion criteria were imported into Mendeley and Covidence. Articles were read and additionally sorted into final acceptance folders after abstraction.

Results

Results of the literature review are illustrated in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram in Figure 2. The literature search yielded 212 references, including 54 from Scopus, 8 from Web of Science, 137 from ProQuest, and 13 from PubMed. Four additional references were identified through bibliographic references and recommended articles from Mendeley. After duplicates were identified and removed, 182 references remained for title and abstract review. There were 120 references eliminated based on title and abstract review, leaving 62 records eligible for a full text review. Following a full text review of 62 articles, 58 were eliminated based on specified inclusion or exclusion criteria. The following reasons were used to exclude studies in the full text review: 30 discussed patients in another setting of care (i.e., not in a SNF), 15 examined other patient populations (i.e., not ACO patients), 5 discussed interventions outside the scope of this work (i.e., did not discuss the contracted relationship between ACO and SNF, no intervention on SNF LOS, or readmission from SNF to hospital), and 3 discussed other outcomes that were not specific to the post-acute setting (i.e., not SNF costs, LOS, or readmission rates).

FIGURE 2: PRISMA flow diagram



There is a notable gap in the literature regarding the definition of successful post-acute care contracting. There is currently no clear definition of the process elements required to show a successful contractual relationship between the two entities, ACO and SNF. While the ProQuest search described above yielded many articles discussing contract staffing, skilled nursing care, and accountability for care, they did not clearly define the financial incentives or clinical processes necessary to coordinate care and improve health outcomes as an ACO patient transitions into a SNF. The quality of the final articles abstracted in this review was high, but

there were few. The literature remains sparse when examining the connection between ACOs and SNFs as it correlates to patient readmission rates or LOS in the SNF. This literature review defined the research to date and there is a surplus of commentary within the gray literature on population health and ACOs in general. Given the author's role at a national population health company and work with ACOs nationwide, the author reads these updates daily. For the final dissertation, an additional literature review was conducted to add any critical or materially relevant articles.

Of the remaining articles, four presented quantitative data analyses on one or more outcomes. Five additional articles were excluded because they were qualitative reviews of general ACO-related concepts and did not address the appropriate inclusion outcomes.

The remaining four quantitative studies could be grouped into two studies that primarily examined readmissions alone as a quality outcome (Maly et al., 2012; Winblad, Mor, McHugh, & Rahman, 2017) and two studies that examined specific but incompletely defined process elements between ACOs and SNFs (Lage, Rusinak, Carr, Grabowski, & Ackerly, 2015; McWilliams et al., 2017). The themes of outcome analysis, cost, and contracting elements are further reported within these results.

Readmissions

Maly et al. (2012) reviewed available CMS ratings data and performed claims data analysis to examine readmission rates, whereas Winblad et al. (2017) performed a comparative analysis between ACO-affiliated hospitals and non-affiliated hospitals in reducing readmissions.

Maly et al. (2012) had a primary objective to define and quantify the collaborative relationship between the Lehigh Valley Health Network and its community SNFs. They used scoring and variable weighting to measure six variables of quality as well as indicators of

readiness for collaboration with the Lehigh Valley Health Network Organization. One of their specific variables of quality was measurement of the 30-day readmission percentage from SNF to hospital. They showed a decrease in readmissions for those patients admitted to SNFs within their preferred network. The authors found that by analyzing indicators of quality, they could create a scorecard that allowed the physician organization to prioritize relationships and referrals into community SNFs from the Lehigh Valley hospital system. Maly et al. (2012) hypothesized that using a tool to define strong collaboration between hospital and SNF will ultimately improve quality of patient care and reduce costs.

Winblad et al. (2017) examined whether ACO-affiliated hospitals were more effective than other hospitals in reducing readmissions from SNFs. They compared rehospitalization rates for beneficiaries served by hospitals in metropolitan areas that were part of Medicare's Pioneer or Shared Savings ACOs with beneficiaries served by hospitals in the same areas that were not (Winblad et al., 2017). Their main outcome variable was an indicator variable of 30-day rehospitalization that was "all cause," including both planned and unplanned readmissions. Winblad et al. (2017) went beyond the simple 30-day readmission framework of Maly et al. (2012) by creating rehospitalization measures that further implied quality of care at the SNF. They created one assessment measure for a 1- to 2-day post-discharge period, which would imply that a readmission occurring within this period may suggest premature discharge. They also created an additional period measure of 4–30 days, which implied poor communication of clinical information between hospital and SNF and further implied that care resources at the SNF may be inadequate for patient needs. Winblad et al. (2017) showed that the proportion of patients discharged to a SNF was slightly higher in ACO-affiliated hospitals and LOS in the SNF was slightly lower at Pioneer ACO hospitals. Pioneer ACO hospitals had a lower rehospitalization

rate than non-ACO hospitals and they reduced hospitalizations within 30 days by more than 3 percentage points (Winblad et al., 2017).

Cost

Cost as a separate analysis was not undertaken in either the Winblad et al. (2017) or (Maly et al., 2012) studies. This was a noted limitation of these articles. Effect on cost reduction was implied in the readmissions analysis by Maly et al. (2012); however, more detail from additional claims analysis would be needed to reaffirm this conclusion.

ACO/SNF Contracting and Cost

The two remaining articles in this review more comprehensively addressed the theme of contracting between ACOs and SNFs and specifically discussed which individual relationship elements emerged as clinically significant, therefore influencing patient outcomes. Lage et al. (2015) showed a process for selecting SNF partners for an ACO collaborative network. They created a scorecard that awarded points based on quality criteria such as CMS five-star ratings, days of available clinical coverage within the facility, and readmission rates. They were one of the only groups to risk adjust the population admitted to a given SNF. Lage et al. (2015) used the OnPoint-30 Readmission Measure from the third quarter of 2013 to "calculate an expected readmission rate for each SNF using variables from the minimum data set (MDS) to adjust for illness severity. This measure is made available through the American Health Care Association and has been submitted and endorsed in 2016 by the National Quality Forum" (p. 805).

Lage et al. (2015) found that selected SNFs in the ACO/SNF collaborative showed several common procedural elements. They identified the core inclusion criteria of clinical coverage within the facility, medical evaluation within 24 hours of admission, and experienced SNF leadership to be positively correlated with improved readmission rates from SNF to hospital

(Lage et al., 2015). Some of the ACOs included in this study cohort implemented some or all of these elements; however, these specific processes were not addressed as study inclusions.

When Lage et al. (2015) examined readmissions as an outcome, they noted that "… the average expected readmissions rate was 19.4%. For selected SNFs, this rate was slightly lower (18.4%), and for the 'met minimum criteria; not selected' SNFs, the rate was 20.4%" (p. 806).

McWilliams et al. (2017) looked more specifically at the cost component of the ACO/SNF relationship. The primary endpoint of the study by McWilliams et al. (2017) was to evaluate changes in post-acute care spending and use of post-acute care associated with provider participation as ACOs in the MSSP and show the pathways by which these changes occurred (p. 518). The authors examined beneficiary spending longitudinally over time, comparing those served by ACOs to beneficiaries served by local non-ACO health care professionals (control group). They also examined costs before and after entry into the MSSP. McWilliams et al. (2017) reported that across 114 ACOs in 2012, participation in Medicare Shared Savings was associated with an overall reduction in post-acute spending driven by reductions in acute inpatient stays and LOS in the SNF. McWilliams et al. (2017) further emphasized that reductions in LOS were largely attributed to within the hospital or within the SNF changes in care that were applied specifically to ACO patients. Cost estimates were similar for ACOs with and without financial ties to hospitals and their data showed that participation in the MSSP was not associated with significant changes in 30-day readmissions, use of highly rated SNFs, or mortality (McWilliams et al., 2017).

Discussion

The overall quality of the final articles reviewed was high based on topical relevance, applicability to the post-acute/SNF setting, and attention to cost or quality. Statistical analysis

was performed on readmission rates and clear inclusion and exclusion criteria were noted within each final study. The cost analyses of McWilliams et al. (2017) were thorough and this was the only study to approximate a per-beneficiary savings because of an ACO network contract. A significant limitation to overall quality was that each individual study touched on one or more variable components around four main themes: readmissions, contracting, cost, and geographic area. While LOS was initially proposed as a cost outcome, this variable was only tangentially discussed in the final review, and there were no definitive correlations reported when examining LOS within an ACO/SNF relationship.

Readmissions

Consensus from the four final articles reviewed showed a general correlation between affiliation with an ACO and improvement in readmissions. The study by Winblad et al. (2017) concentrated on the noncommercial ACOs funded by Medicare: the Shared Savings Program and the Pioneer ACO model. Their analysis compared rehospitalization rates for beneficiaries served by hospitals in metropolitan areas that were part of Medicare's Pioneer or Shared Savings ACOs with beneficiaries served by hospitals in the same areas that were not. Winblad et al. (2017) showed that ACO-affiliated hospitals were more effective than other hospitals in reducing readmissions from SNFs. Maly et al. (2012) limited their analysis to the Lehigh Valley Health Network only. The question arises as to the applicability of these findings to more rural areas or even to commercial ACO relationships. Readmission rates may be higher in rural community hospitals with limited resources. As the health systems under study are chosen through randomization, there is the availability to study rural versus urban demographics.

Post-acute care in rural communities often includes care provided in swing beds. The term "swing bed" describes the level of care hospitalized patients receive once they are no longer in need of acute care. According to the Minnesota Department of Health (2007),

> A national swing-bed program was first authorized in the 1980 Omnibus Budget Reconciliation Act (Public Law 96-499) allowing Medicare and Medical Assistance reimbursement of swing-bed care in rural hospitals with fewer than 100 beds. Swing-bed admissions are limited to patients who require some level of skilled nursing care and are currently in a hospital acute care bed. Patients cannot be admitted to a swing bed from either the community or a skilled nursing facility unless they have spent three days in an acute care hospital bed for related service needs within the past 30 days. Swing bed days are generally limited to 40 days per patient under state law. (p. 4)

Within the ACOs included in this study, there was no significant proportion of rural hospitals meeting these criteria; therefore, the presence of swing beds was not included in the final analysis. An additional question was asked regarding the presence or absence of swing beds in each SNF key informant interview to verify this as well.

Patient demographics, including younger age in the commercial population, may change the outcomes of readmission rate as well as the salient components of the ACO/SNF contractual relationship. Commercial patients in risk arrangements may have fewer chronic diseases and more acute traumatic episodes, therefore limiting the ability to influence post-acute care costs or outcomes.

The study by Maly et al. (2012) was the only one in this review to look at discharge volume from the hospital setting as a component of their readmissions analysis. The authors accounted for patient discharge destination volume and recognized that volume of discharges to a particular SNF was recognized as a critical component to SNF alignment and ACO partnering (Maly et al., 2012). They adjusted for this variable with a greater weighting in their ranked analysis of preferred SNFs. Referral volume is a significant variable for SNFs as they are seeking

added patients from the community hospitals and physician networks. SNFs have a high attrition rate with many admitted for short-term rehabilitation as well as a high mortality rate due to the medical complexity of the elderly patients that they serve. Systemically addressing hospital/SNF relationships from a perspective of referral patterns has not been fully vetted in the literature. Many SNFs will assert that their facility readmission rates are less than optimal because they see sicker patients. Risk adjustment in the post-acute care setting is newly developing and is a gap in much of the literature and outcomes analysis.

Lage et al. (2015) were the only authors to use a risk-adjusted scoring measure to provide a case mix within the SNFs they analyzed. OnPoint-30 calculates an expected readmission rate for each SNF using variables from their MDS to adjust for illness severity. The MDS is part of the U.S. federally mandated process for clinical assessment of all residents in Medicare- or Medicaid-certified SNFs. This data set collects information on each resident's functional capabilities and helps the care team to identify clinical problems (Centers for Medicare and Medicaid Services, 2015). Aside from risk adjustment, the authors also used a scoring system in an attempt to define ACO/SNF partnership quality beyond publicly reported metrics (Lage et al., 2015).

Contracting

McWilliams et al. (2017) and Lage et al. (2015) addressed the theme of defining critical elements of contracting between the ACO and SNF. Both studies demonstrated that there is a correlation between the contracted relationship and patient outcomes. While Lage et al. (2015) discussed criteria for inclusion into their regional ACO collaborative, there was no mention of addressing cost, spending, or LOS as variable measures. Cost may be defined as a unit SNF cost per day, while spending may be calculated as a total cost of care within a given diagnosis

episode. They also did not mention the contractual process elements required to improve outcomes for admitted patients to SNFs (Lage et al., 2015). Maly et al. (2012) scored and ranked discharges from hospital to SNF but focused primarily on high-volume SNFs rather than LOS or overall episode cost within the SNF.

McWilliams et al. (2017) examined claims data to investigate post-acute spending, but they defined their contracts as contracts between ACO organizations and the CMS Shared Savings ACO Program. Their focal relationship and did not focus directly on the contractual connection between ACO and SNF. Winblad et al. (2017) had a similar distinction, focusing only on the relationship between ACO-affiliated hospitals and SNFs. Their study also lacked meaningful information illustrating the specifically contracted process elements implemented between the ACO and SNF.

Within the final analysis for this dissertation, it must be acknowledged that the hospital/SNF relationship may be a significant influence on the ACO/SNF relationship. Given the availability of data on all attributed beneficiaries within a given ACO, there may be situations in which the hospital or the SNF are one or both out of the ACO network. This will be a limitation of the final analysis and may affect the ability to definitively correlate outcomes.

The study by McWilliams et al. (2017) did not clearly address the contractual process elements of an ACO and SNF relationship and therefore did not address patient outcomes directly in the SNF as a setting of care. McWilliams et al. (2017) performed a retrospective claims analysis and as a result would not be able to recommend facility-level interventions to improve outcomes. Maly et al. (2012) also had an incomplete reporting of the shared risk contracts used within their narrow network and did not specify process details within their contractual relationships.

Cost

Data discussing actual post-acute spending between ACO-affiliated facilities were limited within this review. The only study to fully measure cost and show statistically significant reductions in SNF spending for ACO-affiliated entities was by McWilliams et al. (2017). Specific cost metrics within the ACO and SNF relationships that positively influenced patient outcomes were not well defined across any articles reviewed.

McWilliams et al. (2017) were the most thorough in their analysis, showing that participation in a MSSP was associated with an overall reduction in post-acute spending (differential change in 2014 for ACOs versus control group) of −$106 per beneficiary. They addressed their cost analysis by showing that changes in post-acute care spending and use of post-acute care services were associated with provider participation in ACOs in the MSSP. No other study reviewed or performed a similar cost analysis.

Geographic Area

Geographic area is another important element of ACOs to consider when contracting with SNFs. Patient families often choose SNFs near to their homes so that they can visit their loved ones. ACOs may be community based, or they may span a larger geographic area including several cities and counties. Winblad et al. (2017) were the only authors in this review to discuss this patient attribution issue as a limitation of their research. While Lage et al. (2015) clearly defined inclusion and exclusion criteria for entry into their ACO collaborative network, Winblad et al. (2017) went further to comprehensively discuss the confounding issue of patient attribution and how that assignment of patients affects transitions of care.

Summary

Future research is needed to fully understand the contractual process elements needed to ensure positive outcomes when patients are admitted to a SNF. The presence of an ACO relationship between ACO and SNF is hypothesized to create a system of monitoring and addition of resources to ensure a higher quality of care. However, this connection has not been adequately proven within the literature.

Limitations in this review process included a restricted number of articles that showed defined contractual relationships between the entities of ACO and SNF. Many articles were excluded because they did not meet the criteria of setting of care (i.e., not in a SNF), they examined other patient populations (i.e., not ACO patients), they discussed other interventions (i.e., not a contracted relationship between ACO and SNF, no intervention on SNF LOS, or readmission from SNF to hospital), or they discussed other outcomes (i.e., did not examine SNF costs, LOS, or readmission rates).

This review does successfully demonstrate that there are initial positive correlations between ACO-affiliated hospitals and SNF to hospital readmission rates. This review also shows positive results of effective SNF network creation in an ACO collaborative network (Lage et al., 2015) and in one specific geographic area in Lehigh Valley (Maly et al., 2012). Additional research is needed to show that the contractual processes deemed important to include a facility in an ACO relationship are indeed positively associated with improvement in patient outcomes of readmissions and LOS.

As described previously, there is a need to address post-acute costs and variability. The very premise of participation in an ACO is to provide high-quality clinical care at lower cost compared to traditional fee-for-service Medicare. Health systems and physician groups enter contractual relationships only when they anticipate favorable financial risk. Correlating

individual patient health outcomes to patient choice of a SNF with guided context from the hospital discharge planners and then showing an added association with decreased health care cost is challenging due to multiple variables, confounders, and system issues. This research analysis has an existing hypothesis that if a SNF contracts with an ACO, there will be improvement in overall cost and quality of care for admitted patients.

Local ACOs must work with SNFs and community agencies within their geographic area to ensure that providers and patients are both informed and educated such that attributed ACO patients receive the appropriate level of health care service for their clinical needs. Feedback tied to clinical and financial outcomes supports the mission of the ACO to improve overall health while controlling costs and essentially solidifies the relationship between the ACO and the SNF.

When considering contracted relationships between ACOs and SNFs for improved coordination of care for patients, there is a critical need to have an established central infrastructure to evaluate the care delivery as well as the communication between entities, including the additions of the discharging hospitals, community, and government agencies. The onus for this is on the ACO. Continuation and creation of meaningful SNF partnerships due to effective and improved care will reinforce the shared overall agenda between the ACO and the SNF and the mutually reinforcing activities needed to foster such collaboration.

CHAPTER 3: METHODOLOGY

The primary, overarching research question of this study is to define the critical processes, led by ACOs, that facilitate SNF relationships and influence patient health outcomes. The rationale from the conceptual framework presented earlier is that the presence of a value-based contract between the ACO and CMS, which defines accountability for a specific population and includes metrics examining cost and quality, will lead the ACO to develop relational processes and procedures with community SNFs which result in meaningful improvements in patient health outcomes at the SNF, including LOS, ED utilization, and hospital readmission rates. It is therefore hypothesized that the presence of a relationship between an ACO and a SNF will result in a preferred ACO network of SNFs and within that network, specific operational process and procedural changes will result in reduced LOS, improved readmission rates between hospital and SNF, and decreased ED utilization.

Aims

Table 2 outlines the research aims and proposed methods for this study.

TABLE 2: Research aims and proposed methods

Aim	Proposed Method
• Describe the current state of accountable care organization (ACO) post-acute relationships. Then, based on the initial findings, describe barriers and facilitators to future relationship efforts. Identify process-oriented themes that will be further investigated during the quantitative analysis	• Key informant interviews
• Identify measures of utilization including readmission rates from skilled nursing facility (SNF) to hospital, overall costs, and length of stay (LOS) in days that are critical targets to include within a post-acute ACO/SNF contract	• Literature review, key informant interviews
• Distinguish SNF characteristics that may influence quality of care delivery in the post-acute setting. Following identification of contractual themes from the key informants, correlations to health outcomes and quality of care will be investigated using claims data. Additional process measures inside the SNF may influence patient experience. SNF quality will be defined in terms of staff resource application, timely communication with the ACO, and SNF performance on quality metrics	• Centers for Medicare and Medicaid Services claims informing existing SNF Utilization Reports provided by the national population health company
• Identify and promote best practices and network education through a plan for change to influence future post-acute contracts between ACO and SNF	• Plan for change

This analysis utilizes both qualitative and quantitative data collected from ACO health systems nationwide in two stages. The first stage comprised analysis of qualitative data collected by the researcher through key informant interviews with ACO, health system, and SNF leadership within each selected ACO. These interviews sought to understand the current state of relationships between ACOs and SNFs and identify barriers and facilitators to the development of these relationships. The second stage used secondary quantitative data from existing SNF utilization reports to evaluate the specific process elements influencing cost and quality based on the themes elicited from the qualitative interviews. This mixed-methods approach captured ACO themes and inputs for post-acute relationship and network development, as well as informed critical elements influencing patient health outcomes at the SNF.

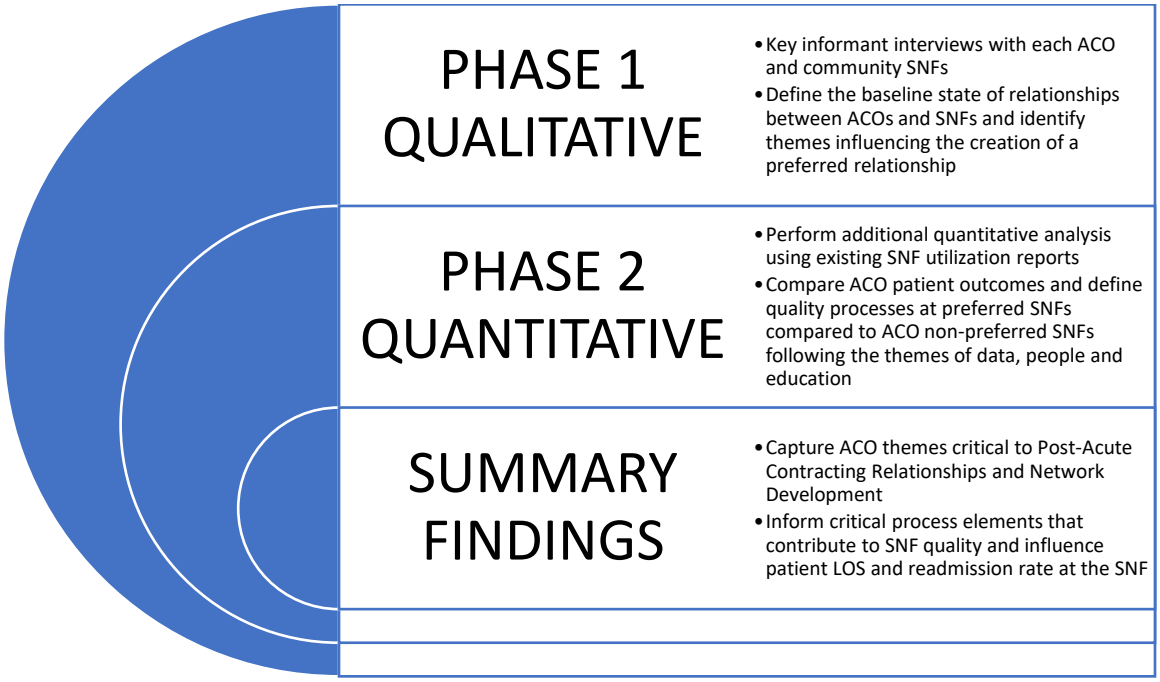
The author works for a national population health company that partners with health systems as they enter into ACO contracts with CMS. The Chief Legal Counsel as well as the Chief Compliance Officer were supportive of this work and agreed to support this work in subsequent publications. Institutional review board (IRB) approval included a guarantee of anonymity at every health system; therefore, all data were blinded, and each health system identity was protected. As a clinical leader, the author has relationships with multiple health systems nationwide and is directly involved in the execution and operational design of their individual clinical programs. The author's association with the national population health company allows access to reports that analyze CMS claims data for each health system, in addition to other data inputs, including admission/discharge/transfer feeds from the ACO-affiliated hospitals, electronic health record data from physician practices, laboratory and imaging data to examine utilization patterns, and data on social determinants including demographics.

While this research is of scholarly interest to the author's national population health company, it is not part of the author's ongoing role or responsibilities, nor is it a requirement of the author's work. This national population health company has agreed to support this effort with resources. Informed consent was obtained from each key informant and each ACO. Assistance from an analyst employed by the national population health company was obtained to query the ACO data and review reports on specific variables related to SNF cost and quality. These variables were defined and chosen based on the themes that emerged from the initial qualitative key informant interviews.

Figure 3 illustrates the mixed-methods approach. As the problem of defining relationships between ACOs and SNFs is complex, a pragmatic approach allowed for

characterization of the social, historical, and political impacts of the findings. An exploratory sequential mixed-methods design (Creswell, 2014) was planned to begin with a qualitative research phase and explore the views of ACO leaders, health system leaders, and community SNF leaders. Inquiry and feedback from these key informant interviews then defined the components of the analysis in the quantitative phase that would be most clearly correlated with patient health outcomes.

FIGURE 3: Mixed-methods approach



Methodology for the Phase 1 Qualitative Analysis

ACOs were selected based on their relationship with the national population health company of the author and the presence of a contractual ACO relationship with CMS participating in either the Track 1, Track 3, or Next Generation ACO programs. The purpose of conducting these interviews was to determine the important components that define relationships between ACOs and SNFs, examine how ACOs are developing preferred SNF networks, and

identify specific outcome measures of utilization within successful post-acute ACO/SNF contracts. For the qualitative analysis, key informants were identified from six ACO health systems. This number was chosen initially because it was deemed reasonable and manageable. The key informants were initially defined as having an ACO partner relationship with the national population health company. Of the 15 initial partnerships currently in place with the author's employer, six health systems were chosen based on maturity, geography, and size. Maturity was defined as initial entry into value-based care/population health or more than 1 year of experience in a population health/value-based contract. Geography was defined as urban or rural based on general geography and span of network. Size was defined by number of beneficiaries, and all of the health systems had at least 15,000 attributed Medicare fee-for-service lives. A listing of the ACOs chosen and their respective features, including type of CMS ACO contract, is shown in Table 3. Program types are compared and contrasted in Table 4.

TABLE 3: ACO selection and summary descriptors

ACO	Size (No. of Covered Beneficiaries)	Location (Rural or Urban)	Maturity (No. of Years as an ACO in Value-Based Care and CMS Program)
A	18,000	Rural	1 as Next Generation ACO
B	20,000	Rural	3 as Next Generation ACO
C	21,000	Urban	3 as Track 3 ACO
D	20,000	Urban	5 as Track 1 ACO
E	18,000	Urban	1 as Next Generation ACO
F	25,000	Rural	5 as Next Generation ACO

TABLE 4: CMS ACO program descriptors

ACO Program	Participants	Characteristics	Payment Terms Overview

Track 1	• Networks of individual ACO professionals
	• Partnerships or joint ventures between ACO professionals and hospitals
	• Hospitals employing ACO Professionals
		• Must serve at least 5,000 Medicare Fee for Service (FFS) beneficiaries
		• Participate in the program for at least 3 years
		• ACO must establish a governing body representing ACO participants and Medicare beneficiaries
		• ACO is responsible for routine self-assessment, monitoring, and reporting of the care it delivers
		• Track 1
		  ○ One-sided risk model
		  ○ May receive "shared savings" but not liable for "shared losses"
		  ○ Can be in Track 1 for up to 6 years
			• Providers continue to receive Medicare FFS payments for covered items and services
			• "Shared savings"
			• Meet or exceed a minimum savings rate (MSR)
			  ○ Satisfy minimum quality performance standards
			  ○ Maintain eligibility to participate in Shared Savings program
			  ○ Up to 50% for Track 1, not to exceed 10% of ACO benchmark

Track 3	• Same as Track 1	• Must serve at least 5,000 Medicare FFS beneficiaries
		• Participate in the program for at least 3 years
		• ACO must establish a governing body representing ACO participants and Medicare beneficiaries
		• ACO is responsible for routine self-assessment, monitoring, and reporting of the care it delivers
			• Providers continue to receive Medicare FFS payments for covered items and services
			• "Shared savings"
			• Meet or exceed a minimum savings rate (MSR)
			  ○ Satisfy minimum quality performance standards
			  ○ Maintain eligibility to participate in Shared Savings program

		• Tracks 2 and 3
		  ○ Two-sided risk model
		  ○ May receive "shared savings" AND liable for "shared losses"
			○ Up to 70% for Track 3, not to exceed 20% of ACO benchmark
			• Liable for "shared losses" (Tracks 2 and 3):
			  ○ ACO meets or exceeds a minimum loss rate (MLR) it must repay a portion of the losses it generates
			  ○ Capped at 15% for Track 3

Next Generation	• Same as Tracks 1 and 3
	• Preferred Providers (not Next Gen providers/ suppliers)
	  ○ Providers/suppliers who may offer benefit enhancements to Next Gen beneficiaries and participate in Advanced Payment Models (APMs); services furnished will count toward each beneficiary calculation in ACO score
		• Must serve at least 10,000 beneficiaries (7,500 if a RHC)
		• Prospective Benchmarks
		• Two Risk Arrangements:
		  ○ Arrangement A—shared savings and losses of up to 80%
		  ○ Arrangement B—shared savings and losses of up to 100%
		• First dollar shared savings for spending below the benchmark and accountable for first dollar shared losses for spending above the benchmark
		• Benefit Enhancement Tools
		  ○ Greater access to post-discharge home visits and telehealth and SNF services
		  ○ Opportunities for beneficiaries to receive rewards for receiving care from ACO and affiliated providers
			• Prospective Benchmarks
			• Four Payment Options:
			  ○ Normal FFS
			  ○ Normal FFS + per beneficiary per month (PBPM) recouped against shared savings or in addition to losses
			  ○ Population-based payments, providers/suppliers have FFS claims reduced and ACO receives a monthly payment equal to the FFS reduction percentage
			  ○ Capitation, ACO receives monthly Per Beneficiary Per Month (PBPM) capitation payments and is responsible for paying claims for ACO providers
			• First dollar savings and losses paid to ACO

	○ Process that allows beneficiaries to confirm their care relationship with ACO providers ○ Greater collaboration between CMS and ACOs in relation to their care

Source: Data were modified from tables listed on pages 3 and 5 in Physicians Advocacy Institute (2018).

Key informants for each ACO were chosen by segregation into three role types: population health administrators/ACO leaders who were employees of the national population health company and responsible for implementation of post-acute network efforts, health system leaders/collaborators, and SNF community leaders within the ACO geography who receive ACO-attributed patients as admissions. General relationship barriers and facilitators and best practice relationship process recommendations were solicited from all three groups. For each chosen health system, a minimum of one member from each category was interviewed.

Informants were contacted initially by e-mail to request their participation. A brief description of the study was shared using a standardized script. When participants agreed to be interviewed, an appointment was scheduled either in person or via conference call at a time convenient to the participant. The face-to-face meetings were held in a private room, and all sessions were recorded after the principal investigator reviewed the study parameters and requested the participant's permission and the participant gave informed consent.

Interview questions included inquiries across several categories, as follows: risks and benefits of post-acute relationship development; network development strategies, including barriers and facilitators and specific relational questions discussing ACO/SNF process elements as well as financial incentives; and needed physician and provider education as well as patient and family education. To address the research question, key informant opinions were solicited to define what specific processes and procedures were most critical to successful ACO/SNF relationships.

If appropriate, the principal investigator used additional probes to elicit information around key processes and procedures that informants believed could hinder or accelerate the development of a successful ACO/SNF relationship. Further probes were also used to elicit key

informant opinions on the definition of quality care inside the SNF. Example probes could elicit additional descriptors around processes of nurse case management, utilization review within the SNF, data exchange, and timeliness of communication between hospital and SNF or ACO and SNF. The key informant interview guide is provided in Appendix C. Prior to use, the questionnaire was pre-tested with two separate ACO leaders in two separate ACOs.

The principal investigator obtained consent from the key informant at the time of the face-to-face interview or conference call. The consent form was reviewed orally by the principal investigator and each participant was invited to ask detailed questions about the study. Study participants were interviewed in English. All study procedures were described in detail, with special emphasis on confidentiality, such that the participant was fully informed of his or her requirements while participating in the study. During this consent process, participants were reminded they were free to choose to take part in the research study or refuse.

Those who consented to participate in the study were interviewed for approximately 30 minutes. Questions were prioritized to keep the total interview time to 30 minutes or less. During the consent process, all participants were informed that the information they provided through these interviews was anonymous (i.e., not shared with anyone outside of the research team) and voluntary (i.e., they were not obligated to answer any question). Interviewees were told that they were free to take breaks and/or terminate the interview at any time.

Privacy risks and confidentiality were addressed as follows: All interviews with health system leadership were conducted in a private location of the interviewee's choosing. The interviews were "non-attributable," such that no reference to the source of any findings was shared outside the research program.

Identification numbers, rather than names, were used on research materials to identify participants. Hard copies of interview guides and collateral materials were stored separately in a locked cabinet in the principal investigator's office. All interview data and transcripts were stored in password-protected files on a computer at the principal investigator's office. Once the interview data were analyzed and the study was completed, all transcripts were destroyed to ensure that no responses would be linked to an individual. All interview results are presented in aggregate and the names of the individual participants are kept confidential. Descriptors of key informants are included by role (population health administrator/ACO leadership, health system leader, or SNF regulator); to maintain anonymity of the respondent, individual participant names are not included.

Following each interview, all notes or phone recordings were transcribed using a purchased and encrypted application on the investigator's phone. Completed transcripts were reviewed in detail and verified against the digital recording. Transcript-based content analysis of interviews was coded using NVivo 12 Plus qualitative analysis software, in which transcripts and field notes were carefully read and systematically coded to identify emerging themes. The content analysis utilized an inductive approach, which revealed themes and identified patterns through a multi-phase coding process. The documents were coded, and a code book was created from relevant themes related to the research questions under investigation, based on the collective knowledge, perceptions, and experiences of the researchers and informants.

The principal investigator performed primary coding of all transcripts for all interviews. In addition, another investigator (second coder) not directly involved with the research strategy or design independently reviewed and recoded 20% of the transcripts to validate the original coding and code book. Following the coding of all interview transcripts, the reports were systematically

reviewed to identify themes. The identified themes informed the variables to include within the quantitative claims analysis and contributed to the plan for change in order to influence the development of future policy and ACO/SNF relationship recommendations. The research process was reviewed and closely monitored by the dissertation chair and the committee members.

Delimitations

Purposeful selection was used to identify both ACO sites and key informants to assist with answering the research questions (Creswell, 2014). The qualitative study included only ACOs that were in a contractual arrangement with the investigator's national population health employer and SNF leadership from facilities that received ACO patients. Other ACOs were excluded from this study because the primary focus of this dissertation is on the relationship between ACOs and SNFs and the author had access to the supporting clinical data and claims files for those affiliated ACOs. The selection of key informants was facilitated by company staff known to have working knowledge regarding ACO/SNF network strategies.

Data Management Plan

The qualitative portion of this study required the collection and storage of confidential data in several formats (e.g., transcription files, Word documents, transcribed documents, data analysis software files, e-mail communications, etc.). The location of the data files was password protected and only the researcher had access to all of the study files. The key informant interviews were recorded using a purchased application called ACR Pro on the investigator's cell phone. The application is password protected and uses cloud technology to transport audio files to the partner transcription service, Otter. The investigator obtained a password-protected account with Otter; the audio records were digitally and securely shared and subsequently transcribed through this professional transcription service. The transcription files were uploaded into a OneNote password-

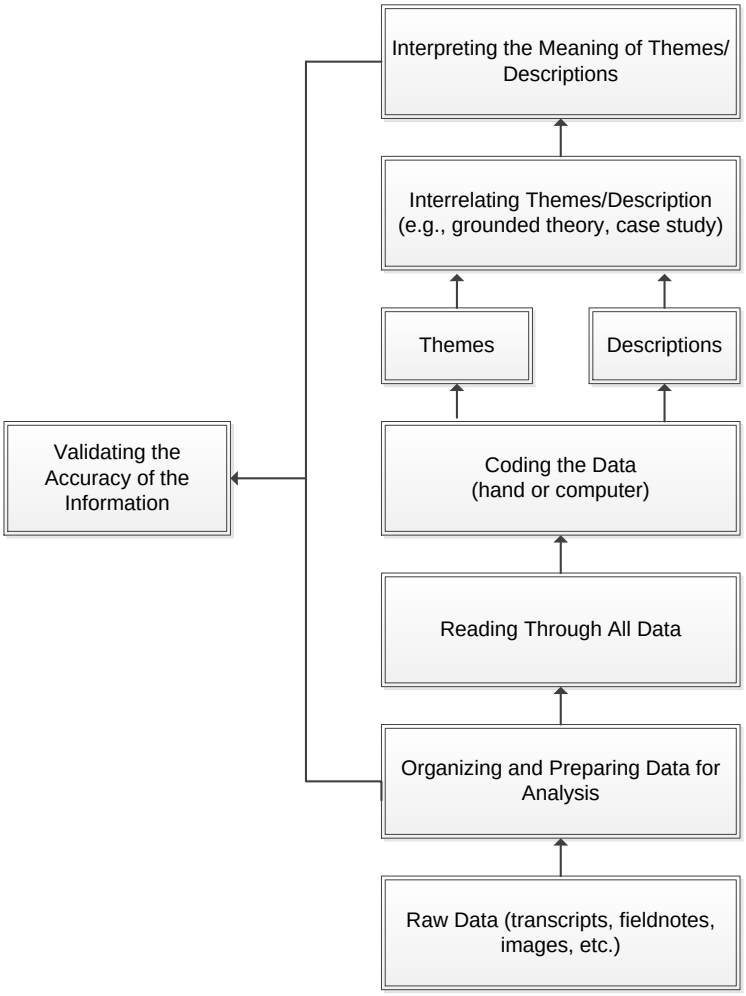
protected folder upon completion and also uploaded into the password-protected version of NVivo 12 Plus, which was purchased and downloaded only to the investigator's secured computer. The investigator followed the IRB security procedures recommended with IRB approval and the computer was additionally protected with the appropriate antivirus software.

Data Analysis Plan

The conceptual model listed in Figure 1B was used to guide the qualitative data analysis procedures. This model contains key factors comprising the ACO/SNF network structure as well as process design and outcomes that will influence anticipated barriers and facilitators related to ACO/SNF relationship development. This post-acute rehabilitation conceptual framework provided the theoretical support for the conceptual model and drove the design of the research questions within the first portion of this qualitative research study (Jesus & Hoenig, 2015). This conceptual model guided the development of a data codebook for the key informant interviews with special emphasis placed on structure, process, and outcomes, with quality as an overarching theme.

The Creswell (2014) approach for qualitative data analysis (Figure 4) was used as a guide. Data from the key informant interviews were digitally recorded on the investigator's cell phone and transcribed by a professional transcription service (Otter) after secure cloud transfer. After the interviews were completed and transcribed, the investigator read all of the transcripts in full and used NVivo 12 Plus software to capture key ideas and themes. The leading thematic elements were tested against the conceptual framework in Figure 1B and a comprehensive code book was generated with primary (bolded) and secondary nodes as listed in Appendix D.

FIGURE 4: Approach to data analysis for the phase 1 qualitative research



Source: Reprinted from *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed., p. 197), by J. W. Creswell, 2014, Thousand Oaks, CA: SAGE Publications, Inc.

Transcribed data were reviewed using NVivo 12 Plus software to understand how ACOs were interacting with community SNFs. Specific interview questions were targeted to understand the barriers and facilitators to creating ACO/SNF relationships and preferred partnerships. The investigator also explored the data for explicit recommendations of quality procedures and practices related to the delivery of care inside a SNF, and key informants were probed to understand what outcome metrics they recommended to be associated with those quality processes.

As each transcript was reviewed, themes and patterns were compared and contrasted according to the quality framework in Figure 1B. Initially, commonalities between the sites were examined in order to identify missing information and to discuss what shared processes were revealed against the qualitative conceptual model. This iterative process modification of the interview probes after one round of pre-testing with two separate and individual key informants helped to further understand findings that were not part of the initial questionnaire.

The key informant interviews sought to identify SNF characteristics that influence quality and may therefore influence patient outcomes. System complexity is a confounder, influencing SNF choice. For example, during the first initial interviews, key informants mentioned education about SNF quality as a criterion for partnership. This estimation of SNF quality was initially defined by the key informants to be evidenced by star ratings and public CMS data, but some key informant interviews also cited the importance of SNF clinical care capabilities (i.e., could the SNF admit a patient on a wound vac or who needed intravenous infusions as a decision-making determinant for hospital/SNF transitions?). While not tied directly to the relationships between ACOs and SNFs, this finding spoke to the complexity of the hospital discharge process resulting in admission of the patient to the SNF, and more specific questions were then asked to delineate opinions on education directed at the referring physician and hospital team, patients and families, or both for subsequent interviews.

Selection of ACOs nationwide allowed the data to be analyzed in a way that enabled a comparison of relationships within and across ACO networks and summarize the practices being used to promote relationship building and support participation in ACO/SNF collaboratives. In addition, barriers and facilitators related to the development of ACO processes within the ACO/SNF relationship were explored for each ACO. This analysis approach allowed the development of a

deeper analysis of themes across ACO/SNF networks and enabled comparison by different factors, such as organization size, geographic location, and maturity of efforts into value-based care.

Results from the qualitative study informed the quantitative study analysis approach. The most frequently cited ACO processes influencing quality of care delivery within the SNF were derived to define the critical best practices influencing the primary outcomes of SNF LOS and readmission rate.

Second Coder Interrater Reliability

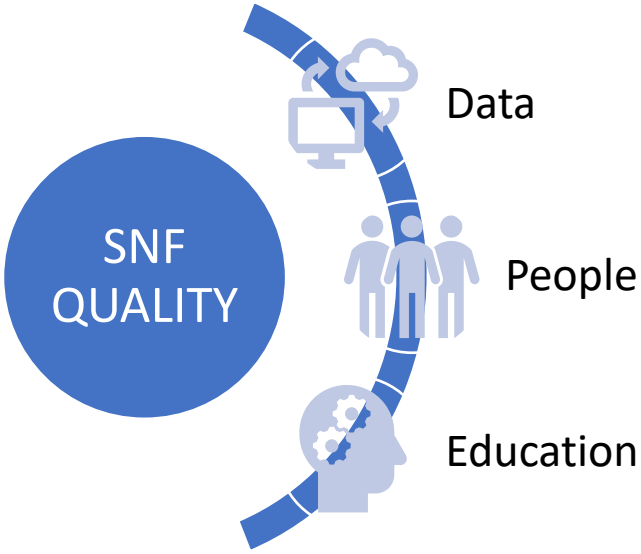
To ensure that there was a high correlation of interrater reliability, a second coder was engaged to code a significant proportion of the qualitative key informant interviews (McHugh, 2012). Second coding was performed in two groups: midway through the interview collection period and at the end of data collection. A total of eight transcripts were reviewed and second coded, totaling 10 key informants of the total of 47 participants. Of the 47 total interviews performed, the second coder addressed 8 total interviews and 10 of the key informant interview inputs to help alleviate any concern around the group interview experience encountered for participants from ACO E. In total, 21% of all intake data were second coded.

Second coder correlation was high, showing 94% agreement at the midpoint and 93% at the end of the study. Within this study, the percent agreement was high and directly interpretable. The key limitation of this study is that it did not take account of the possibility that the reviewers guessed on categorization of codes. It therefore may overestimate the true agreement among reviewers. The second coder was familiar with the field of ACOs but did not have case-specific knowledge and was not involved in the research or data collection. The level of knowledge of the second coder proved adequate and the scope of the intercoder reliability check followed the research objectives (Mouter & Vonk Noordegraaf, 2012).

Methodology for the Phase 2 Quantitative Study

Themes obtained from key informant interviews in Phase 1 of the research study informed the quantitative portion of the research and included the following: data sharing with SNFs either individually or collectively, presence of an ACO clinical team member in the SNF to facilitate care transitions and execution of care, and patient/family/referring provider education at the time of SNF admission. As stated in the research hypothesis, an ACO/CMS contract leads to ACO/SNF relationship processes which lead to higher SNF quality which leads to better patient outcomes. For the purposes of this report, these relationship processes will be further distilled in nomenclature to the broader categories of data sharing, people, and education. All of the ACOs included in this study had confirmed policies and procedures that were implemented in their preferred SNF relationships. The presence of these ACO processes was confirmed and housed within the overarching theme of quality of SNF care delivery as shown in Figure 5.

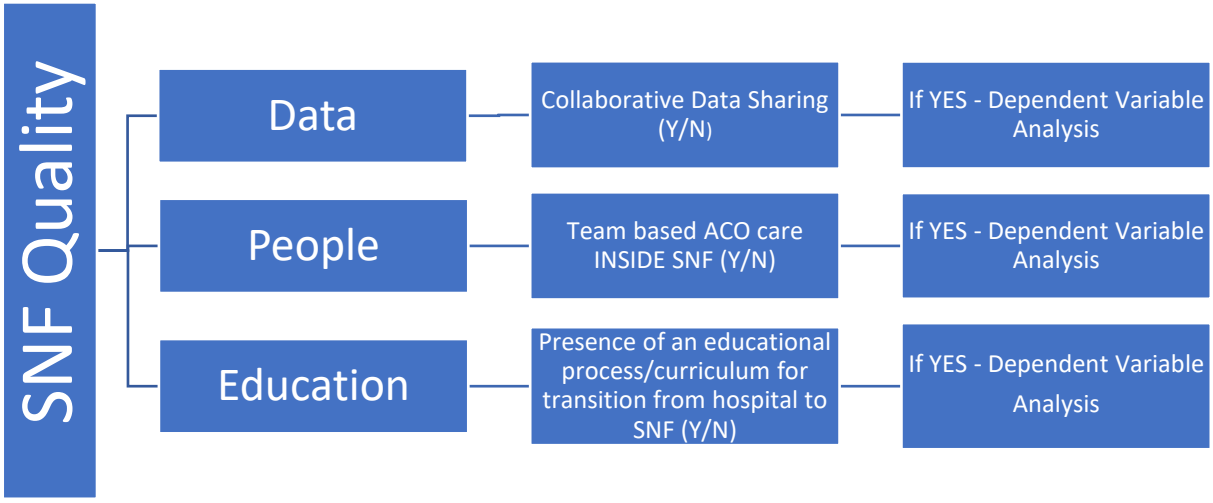
FIGURE 5: Prevalent themes elicited from the qualitative study



In order to define specific and successful ACO behaviors and determine how the presence or absence of these processes influenced outcome metrics (LOS, readmission rates), the above themes were further distilled into binary yes/no questions to establish the presence or absence of best practices for quantitative analysis. The definition of preferred partners within this study is defined as the presence of a collaborative relationship between ACO and SNF. This relationship includes processes and procedures related to exchange of data, placement of staffing resources such as a Registered Nurse or Community Health Worker within the SNF to perform care coordination activities, and education for patients, families, and providers on the capability and services of the SNF at the time of transition (admission).

This framework, illustrated in Figure 6, is designed to address best practices for ACO/SNF relationships and define specific and binary system processes that may influence the outcome variables of SNF LOS, readmission rate, and measurement of ED utilization from SNFs.

FIGURE 6: Framework for ACO/SNF relationship development



Data sharing was repeatedly mentioned as important in the key informant interviews. Each ACO in the study cohort had some level of data sharing between ACO and SNF. In order to define those SNFs where data were exchanged with the ACO, a binary yes/no question was asked to confirm that the ACO was facilitating collaborative meetings and sharing data on cost and quality with the SNFs in their respective community.

People, defined as an ACO-affiliated case manager, registered nurse, or another health care delivery provider such as an ACO physician, nurse practitioner, or physician assistant was cited as a successful influencer on quality of care within the SNF and a defining variable for the resulting LOS for the patient. In order to define those SNFs where people were used to facilitate care, a binary yes/no question was asked to confirm that the ACO was facilitating team-based care inside the SNFs within their respective community.

Education was repeatedly emphasized from the key informants for both the hospital and transition team referring the patient to the SNF as well as patients and families as they chose the next setting of care. ACOs that created a defined curriculum for education at the points of transition within the hospital and physician networks and that also had policies and procedures to educate patients and families toward SNFs with ACO relationships. In order to define those SNFs where education was part of the process of selection during patient transition, a binary yes/no question was asked to confirm that the ACO was following an educational process and sharing data on cost and quality for the SNFs in their respective community to assist with informed decision making for SNF selection.

The quantitative analysis did not prove causality but rather characterized the value of specific relationship provisions as defined by the qualitative data. As qualitative themes describing necessary relationship provisions were defined from the qualitative research emerged, these themes

were verified using the binary questions defining ACO processes with SNFs. Then, using a utilization report that examined the top 15 SNFs for each ACO, a quantitative analysis was performed on the dependent variables of readmission rate from SNF to hospital, LOS within the SNF, and ED utilization. These initial binary questions established a minimum baseline; some ACOs may be doing more or have additional processes in place, but the activities in Figure 6 were chosen as a minimum best practice for each ACO/SNF relationship as these behaviors were repeatedly mentioned by the key informants.

The unit of analysis is the SNF within each selected ACO. The themes of people, data, and education all contribute to the implementation and execution of quality care delivery inside the SNF and the presence or absence of specific ACO processes is thought to influence the outcomes of LOS, readmission rate, and ED utilization.

An example of a framework designed to address the quality of care within the SNF and the relationship to specific ACO processes and outcomes is illustrated in Figure 1B. The ACO entity will or will not perform specific processes that, if present or absent, will result in effects on patient health outcomes including ED utilization, LOS, or readmission back to the discharging hospital. The presence of these activities around data, people, and education defines a preferred facility where the ACO has a relationship with the SNF and performs the binary processes. The non-preferred SNFs do not have the preferred relationship with the ACO and therefore do not experience the data exchange, staff resourcing, or education at the transition of care which may lead to their facility selection for patient admission.

For all ACOs in the study cohort, ACO/SNF network development and relationship efforts will continue along its developing continuum and, as SNF metrics of readmission and utilization are measured, patient and family experiences may also be evaluated in the future as an

additional variable contributing to SNF quality. While this study does not include patient-level analyses of satisfaction with individual SNFs, future directions for research considering patient-reported outcomes are recommended.

Data Sources

The national population health company where the investigator is employed has a data warehouse that stores CMS claims data as well as health system data such as patient charts within the electronic health record, laboratory data, imaging data, and patient demographics. This company also has a proprietary population health platform that can report workflow generated data identifying the presence or absence of specific clinical processes such as case management by a registered nurse or a referral to a social worker. Data sources included health systems identified as having an ACO contract with CMS and those that had an operating partner relationship with this national population health company.

Performance on readmissions from SNF to hospital as well as measurement of the presence or absence of specific processes within the ACO/SNF relationship was considered a proxy for quality. Quality of care delivery in the SNF may be indirectly correlated with readmission rates from SNF to hospital, but the presence or absence of additional processes and procedures led by the ACO may also have influence, as defined in Figure 6 demonstrating ACO best practice relationships with SNFs. The presence of these additional ACO procedures was confirmed by query with the local ACO teams and their implementation is thought to be a moderator on the outcome variables of readmission and LOS. For example, some ACOs will provide additional resources such as SNF RN case managers (employed by the ACO), and the presence of these individuals at the SNF may strengthen performance on the readmission rate metric if they are helping to coordinate care and if they improve communication across the medical staff.

Initially proposed independent and dependent variables are defined in Table 5. The number of variables was intentionally kept small to address the descriptive correlation to themes by outcome as illustrated above.

TABLE 5: Independent and dependent variables

Dependent variables	• Readmission rate—continuous (interval) • Length of stay—continuous (interval) • ED utilization rate (interval)
Independent variables	• Accountable care organization contract—categorical (binary) • Skilled nursing facility location (geographical)—categorical (nominal)
Covariates	• Gender—categorical (nominal) • Age—continuous (interval)

An analyst employed with the national company provided the cost and use reports as well as the summary results for the top 15 SNFs where ACO-attributed patients were admitted from January 2018 to September 2018 and reflected claims paid through December 2018. These SNFs were sorted by total cost to the ACO and query verification was made with the local ACO leadership team to obtain answers to the binary process questions around data, people, and education. SNFs that had affirmative answers in all three categories were classified as preferred for each ACO network and compared to those facilities that did not have those relational processes and procedures present between ACO and SNF. The yes/no answers helped to address the research question, whether LOS, readmission rate, and ED utilization were different for patients admitted to preferred versus non-preferred SNFs. The author was blinded to all SNF patient names as well as identifiers for the parent ACO.

Data Analysis Plan

Analytical summary techniques were used to address the basic research question of whether there is an association between the presence or absence of an ACO relationship with an

admitting SNF, and if a relationship exists, are there specific processes and procedures in place that influenced a second set of variables (readmission rate, ED utilization, and LOS). There were several interpretations to be considered within the primary analysis:

- If there is an association between the presence or absence of a relationship between an ACO and a SNF and the dependent variables, what is the strength of the association? Is it statistically significant, important, both, or neither? It is possible that even if an ACO has relationships with a selection of area SNFs, an attributed ACO patient may still admit into a SNF without a contractual or relational arrangement (out of network).
- Does the presence or absence of a relationship between an ACO and a SNF logically explain (at least in part) the changes in patient outcomes, influenced by the ACO processes that mediate care delivery and do these explanations hold when considering the effects of multiple factors acting simultaneously? Data limitations for this study do not allow true statistical correlation. Future work could address a bivariate analysis to suggest relationships, while the future addition of a regression analysis would strengthen the correlation and look at independent effects holding all things equal.
- For a given change in process elements, what can then be predicted about the changes in patient outcomes and how does the presence (or absence) of these ACO processes inside the SNF change the definition of quality?

The analytic approach is outlined in Table 6.

TABLE 6: Example correlation of ACO patient outcomes to SNF processes

Theme	Example ACO Process	Measured Outcome
People	Case manager is present at weekly care planning meetings at the SNF	LOS
Data	Inpatient hospital discharge summary is received within 24 hours of SNF admission	Readmission rate
Education	There is a process in place that educates either the referring provider on SNF preferred partners or the patient and family on ACO involvement in care at the SNF	Readmission rate, ED utilization

Using the cost and use reports provided limited descriptive statistics on the outcome variables and therefore presents a data limitation. Use of secondary data from these existing reports allowed only a directional, general examination of association between SNFs that incorporate ACO policies and procedures as a provision of their preferred relationship. Until the first step of thoroughly describing the dependent and independent variables is accomplished using a thorough claims analysis and future qualitative research findings, it is not possible to specify all the variables and the exact analytical techniques that will be needed to answer the questions above. However, given what is already generally known about the usual approaches to answering such questions, potential future analytical techniques could include a strength-of-association analysis, with calculation of the correlation coefficients (also termed the Pearson product moment correlation). Correlation coefficients (or *r* values) will fall between 1 and –1: the closer to 1, the stronger the positive correlation; the closer to –1, the stronger the negative correlation.

Study Limitations

This research effort was limited to the ACO population contracted with the national population health company. This organization works with approximately 15% of the ACOs

nationwide and it was hypothesized that a representative sample could be achieved from their population. Unfortunately, two of the study ACOs terminated their contracts with the national population health company; therefore, their data were destroyed, and they could not be included in the general descriptive quantitative analysis. This left four remaining ACOs for analysis, and this number may not be sufficiently powered to claim true correlations with LOS, readmission rates, and ED utilization.

Today, this national population health company has more than 40 total partners, representing 3.2 million patient lives and more than $600 million in revenue across several lines of business, including health plan services, value-based care, and Medicaid managed care. Within the author's leadership role, the author works with some ACO partners more than others and that could introduce an element of bias into the final analysis. Achieving a standardized list of relationship process recommendations may also prove challenging, as there is significant variation in the approach and implementation of post-acute relationship efforts nationwide. Lastly, the current generalized descriptive approach described above did not allow a statistically significant correlation to be established between specific process elements and patient health outcomes in the SNF, making direct correlation more difficult.

CHAPTER 4: RESULTS

Results of the Phase 1 Qualitative Study

Key informant interview questions were reviewed and pre-tested, with the first coded pretest performed on September 13, 2018. Forty-seven key informant interviews were conducted between September 24, 2018 and December 19, 2018 across six ACOs nationally.

At each selected ACO, three categories of key informant interview interviews were performed:

- *ACO and Population Health Administrators.* These are defined as the "doers and the implementers" (leadership who are actively engaging with the SNFs in their community representing the ACO). These are employees of the national population health company who work locally with each ACO/health system partner.
- *Heath System Policy Makers/ACO Leadership.* These individuals include the client/health system leadership responsible for setting the strategy and direction for ACO policy. They are the decision makers for ACO/SNF contracting and work closely with the ACO and Population Health Administrators.
- *SNF Leadership in the Health System/ACO Community.* These include representative leaders at local SNFs where ACO patients are discharged. This could include facilities in a preferred network if there is one defined for the ACO.

Completed key informant interviews had the following characteristics and titles across each ACO and each interview category as shown in Table 7.

TABLE 7: Completed key informant interview categories and roles by ACO

ACO	ACO/ Pop Health Admin	Representative Roles	ACO/Health System Leadership	Representative Roles	Community SNF Leadership	Representative Roles
A	3	General Manager, Market Medical Director, Senior Director of Clinical Operations	3	Administrative Director of Population Health, Post-Acute Care Chief Medical Officer, Post-Acute Care Director	1	SNF Administrator
B	4	General Manager, Market Medical Director, Senior Director of Clinical Operations, Senior Director of Market Operations	3	Chief Medical Officer, Chief Compliance Officer, SVP of Population Health	2	SNF Chief of Health Services Officer, SNF Chief Medical Officer
C	2	General Manager, Senior Director of Clinical Operations	3	ACO Chief Medical Officer, Director of Population Health, Post-Acute Care Chief Medical Officer	2	SNF Executive Director, SNF Healthcare Administrator
D	3	General Manager, Associate Director of Clinical Operations, Senior Director of Clinical Operations	2	ACO Executive Director, ACO Chief Medical Officer	1	SNF Healthcare Administrator

E	4	General Manager, Market Medical Director, Senior Director of Clinical Operations, Senior Director of Market Operations	2*	5 key informant interviews*	1	SNF Vice President
F	4	General Manager, Market Medical Director, Senior Director of Clinical Operations, Senior Director of Market Operations	3	ACO Executive Director, ACO Chief Transformation Officer, ACO Post-Acute Care Director	1	SNF Admissions and Marketing Director

*Five individuals in total were interviewed within two interviews: the first interview comprised two people and included the Executive Director and Chief Medical Officer for the health system, and the second interview comprised three people and included a Post-Acute Care Director and two Hospital Transition Case Managers.

In-Depth Qualitative Analysis: Key Findings

An in-depth analysis was conducted in order to go beyond the descriptors that comprised the development of the code book. Each ACO in the study cohort had some level of existing post-acute care network development efforts. Many ACOs began this work at the health system level prior to engagement with the national population health company as a partner, and all ACOs continued and accelerated their SNF/ACO network building and implementation as a result of the operational partnership. The following interconnected themes of *data*, *people*, and *education* all influence and contribute to the overarching theme of *quality* governing SNF care delivery. These organizational efforts emerged during the interviews and are presented below.

Theme 1: Importance of Data

Data communication and exchange was repeatedly cited by the key informants in all categories to be critical to facilitate and improve the quality of care delivery inside the SNF. The theme of data emerged as both a barrier and a facilitator to the ACO/SNF relationship. This theme ties back to aims 1 and 2, which established the baseline state of ACO/SNF relationships as well as defined which specific measures of utilization should be measured in an ACO/SNF relationship. ACO processes around SNF data and exchange of that LOS and readmission data with SNFs influenced the development of preferred versus non-preferred relationships.

Health system leadership repeatedly cited that the ACO/health system relationship afforded them access to data on post-acute cost and utilization that was not previously available to them when working alone prior to contracting with the national population health company.

> The benefits of having data from across settings and facilities is crucial… We are able to share back that information and be able to display and have that transparency back to the skilled facilities about variation… We use the data to identify the most common type of patients that are returning to the hospital. (Key Informant ACO A2, Administrative Director, Population Health, 2018)

Local ACO leadership emphasized data and visibility as a key component of the ACO/SNF relationship.

> …[H]elping SNFs who may not have the resources or analytic capabilities, to really understand what their improvement opportunities are… Obviously, there's publicly available quality [information] that the SNF is probably tracking, but ACOs probably have a higher level of sophistication there. (Key Informant ACO D1, Market General Manager, 2018)

One health system leader emphasized that SNFs are now held accountable for care, and partnership between the ACO and community SNF is beneficial:

> The [ACO] brings them a lot of data… Often, they don't know anything about these patients leading up to the SNF admission, so they [the SNF] don't really know what that patient's readmission risk is when they leave the hospital… They didn't really have that piece of information… I think we can provide them with that sort of rounding out the picture of the patient... (Key Informant ACO F2, Chief Transformation Officer, 2018)

This key informant further acknowledges that the use of comparison performance data can help SNFs in the local communities show positive outcomes:

> …We [the ACO] also bring benchmarking… We're now going to compare you to the SNF down the street …and you're either doing far better or you're doing far worse… We can help… We can also help drive quality through best practice sharing. (Key Informant ACO F2, Chief Transformation Officer, 2018)

SNF leadership key informants emphasized that data were a critical component of the ACO/SNF relationship and cited data and information exchange as a true benefit:

> …They [the ACO] have access to data at a scale and a mega scale, if you will, the SNFs have some general information available, … but putting it in the context of what's happening in different markets and in different populations is a challenge for the SNF, so I think the accountable care organizations can be very helpful. (Key Informant ACO B3, Physician SNF Leader, 2018)

Leaders also acknowledged the importance of data use and availability at a transition of care. It is in the transition from hospital to SNF that there are often missing or incomplete data

and this directly influences patient outcomes as well as experience. One ACO medical director emphasized how the ACO/SNF relationship achieves the following:

> …[The relationship] brings the opportunity to talk about information exchange during transitions when a patient is first admitted to the SNF… the level of information that comes from the hospital, … having the ACO staff be there to help talk about that out loud can help improve the quality of that information and prevent unnecessary readmissions. (Key Informant ACO B1, Market Medical Director, 2018)

Many ACO/SNF collaborations within this study cohort involve ACO staff working with SNF staff to perform quality improvement projects together to improve SNF quality of care delivery. One key informant referenced the importance of this work and specifically called out data as a critical component to quality improvement planning. Utilization data informed an improvement network effort in palliative care, which, if successful, will be shared across all facilities across the ACO/SNF network.

> The ACO can use medical economics and data analytics to identify opportunity areas across [the network] that might align across all of the skilled nursing facilities in order to identify a quality improvement project. So as an example, one of those things that has been identified in this market is around palliative care conversations and patients who really need end of life discussions and planning prior to coming to the SNF and probably need to have those discussions while they're in the SNF… Finding that common goal, working together as a team to come up with workflows and interventions—again, that can be deployed across all of the skilled nursing facilities. (Key Informant ACO B1, Senior Director Clinical Operations, 2018)

Theme 2: Emphasis on People

The theme of *people* in the ACO/SNF relationship was defined by the key informants across three main categories: case management for transition of care from hospital to SNF, rounding and clinical care delivery inside the SNF, and education around staffing and SNF capabilities by the care team within the facility. The theme of people was almost universally a facilitator for the ACO/SNF relationship. SNF key informants repeatedly expressed resource

constraint, and they felt that the addition of ACO staff led to positive influences on coordination of care. The presence of ACO staff was thought by the key informants to moderate and strengthen the quality of care delivery inside the SNF.

Almost universally, the key informants across all three interview categories emphasized the benefit and importance of onsite ACO staff for patients who transition into a SNF.

> A way to really control quality is to have your own SNFists that are working within the ACO, so that you are evaluating their metrics, closely following their quality to make sure that they are delivering high-quality care to our patients. (Key Informant ACO A1, Market Medical Director, 2018)

> I think that every member of the ACO should have some case management background evaluation and follow-up at the skilled nursing facility, in a perfect world… I think a nurse case manager should follow every patient… I think every patient would benefit from being touched…(Key Informant ACO A2, Chief Medical Officer, 2018)

> …[O]ne of the things we found is that having system [ACO] resources dedicated to the SNF… so nurses who are following the patient from the point of discharge from the hospital to the SNF and then help supporting the management of those patients in the SNF can truly make a difference. (Key Informant ACO B1, General Manager, 2018)

This leader went on to say that role type may or may not be a defining influence on quality care delivery, as long as patient needs are communicated and met.

> I'm not sure it always needs to be a nurse. It could potentially be a community health worker or some other lower-license person but someone who can provide that continuity… that has met the family early on in the process while they were still in the hospital and has gotten to know them… They can listen and that can continue even at the point of discharge…" (Key Informant ACO B1, General Manager, 2018)

> …[A]nother thing that we're [the ACO] thinking about is having the person at the bedside who is working with the patient [in the hospital] follow them in the actual post-acute setting… I think it would be welcomed by patients to know that someone who knew everything about them in the hospital is now seeing them [in the SNF] and talking to the care team there… to really better coordinate care. (Key Informant ACO C2, Chief Medical Officer, 2018)

> I think having somebody in the facility is the very best thing to do… The struggle is we have so many facilities and so few bodies… We just don't have the staff to have somebody in every [SNF] facility every day… You have got to look at the volume… [ask] where are our [ACO] patients?... and get folks there [to the SNF]… Having eyes in the facility on the patients and having those established relationships with the [SNF] staff… is the very best thing. (Key Informant ACO D1, Senior Director, Clinical Operations, 2018)

Community SNF leaders viewed ACO people resources as a relationship benefit and a facilitator of the ACO/SNF relationship. When asked what the ACO could do to facilitate improved quality and delivery of care inside the SNF, collaboration on performance improvement projects was identified as well as the onsite presence of a care manager:

> [S]ome of the ACOs offer someone like a care manager… Case managers come in with some of the high-risk patients and that definitely helped [our SNF] with quality measures for readmission. (Key Informant ACO D3, SNF Administrator, 2018)

Rounding by clinical staff affiliated with the ACO was repeatedly mentioned as a good investment of ACO resources.

> One of the things we found is that having [ACO] system resources dedicated to the SNF … so nurses who are following the patient from the point of discharge from the hospital to the SNF and then help supporting the management of those patients in the SNF… can truly make a difference (Key Informant ACO B1, General Manager, 2018).

Within the same ACO system, the community SNF leadership also agreed that a contract benefit to ACO/SNF partnership was a consistent presence of ACO-affiliated staff inside the SNF.

Theme 3: Importance of Education

The theme of *education* in the ACO/SNF relationship was defined by the key informants across three main categories: patient and family education, physician education, and SNF/ACO partnership management. Education emerged as both a barrier and a facilitator to ACO/SNF relationship development. Implementing processes and procedures to provide education to

patients and families as well as referring providers to increase awareness of SNF capability and service was cited by several key informants as a facilitator to building relationships between ACOs and SNFs. Many SNFs cited ACOs as providing value through education.

Barriers to relationship development were cited as key informants acknowledged significant gaps in education for patients and families as well as physicians and discharge planners on SNF capabilities and patient experience. They emphasized that those challenges hindered the ACO's ability to influence process within the SNF and therefore led to limited influence on LOS and readmission rates as SNF networks are developed.

For patients and families, the sub-themes of *SNF capabilities* and *patient choice* were repeatedly mentioned. ACO market leadership, responsible for creating and implementing post-acute networks, emphasized the importance of communication of quality metrics to help patients and families make informed decisions.

> …I think the biggest piece of education is ... the knowledge of the [SNF] collaborative and, … yes, there's all these facilities out there that you could choose from, but this group right here are ones that we work very closely with, … We have a lot of quality metrics that we're working together towards, and you're going to have the continuity of care that's going to continue as you go home… Patients and families need to understand that the overall goal is to improve the care experience…the patient's quality, safety and satisfaction… If we're able to do that by partnering with the SNFs and putting a little more pressure on accountability for performance, then patients will be better off for it. (Key Informant ACO A1, Senior Director of Clinical Operations, 2018)

Transparency in cost and accuracy of public information to help families with informed decision making were additional concerns for ACO market leadership.

> …[T]here has got to be better visibility into the cost pricing and quality of services in any given market, which would include a skilled nursing facility so patients understand… How does my decision either to go to facility A or B, or to go to facility A or go home with some home health services or to go to inpatient rehab, and then go the skilled nursing facility for three weeks and then come home with nursing services… how will that impact me financially and, is there really measurable quality of life …measurable quality of care? Is there a benefit to me [the patient] when making this decision? I don't think patients have the information they need to make informed decisions… So then it's left a lot to anecdotes and branding." (Key Informant ACO B1, Senior Director of Market Operations, 2018)

SNF leadership did not always agree with the market implementation teams. The financial incentives for SNFs to keep census high and maintain admissions are strong drivers for their marketing efforts. One SNF leader cited the following as most important to include in patient and family education:

> …report card scores, satisfaction surveys, word of mouth… Families should look at geography… How easily will there be family and friends able to visit them? Also… touring and meeting that facility and checking it out for yourself to see if it's a good fit. (Key Informant ACO E3, SNF Vice President, 2018)

Physician education recommendations, on the other hand, were strongly slanted toward ownership and accountability as well as data-driven decision making. Many key informants acknowledged that referring physicians needed to have more active responsibility in selection of a SNF for their patients, rather than defer or delegate this to a discharge planner or other hospital team member. This was also cited as a barrier by several key informants.

> [Physicians] should take a little bit more ownership and accountability of where they send patients… At my organization, they totally defer to discharge planners to make those decisions. (Key Informant ACO A2, Administrative Director, Population Health, 2018)

Many market leaders felt that accountability for cost and utilization was more squarely the responsibility of the referring physicians.

> I think the clinicians need to have a foundational understanding of what the [ACO] goals and the outcomes are of the relationships specifically around ED utilization, and readmission avoidance, as well as decreasing the length of stay… ensuring that there is solid communication between the SNF …and I think there needs to be a broad education of how the ACO's clinical team is going to interact with a SNF… to enhance and augment their current work and extend patient care. (Key Informant ACO B1, Senior Director, Clinical Operations, 2018)

The recommendation that physician education include a real systemic understanding of SNF capability and a deeper appreciation of the real-life nuances in this setting of care was emphasized by one post-acute health system physician leader.

> …[Hospital] physicians and nurses have no understanding whatsoever of the capabilities of a SNF. They think that you can admit an acute heart failure patient and get daily labs in a timely fashion and change their medications daily and provide sitters and do everything that the hospital does and that's not true … It's very difficult… They [physicians] don't understand… If there's an acute event… the patient's going to be sent out… Or even if there's an event that we're not so sure is an acute event …the patient is going to get sent out [to the ED] and so I think that just that understanding of how little a patient is seen by medical staff [in the SNF]… It's definitely not a hospital-level medical setting. (Key Informant ACO C2, Post-Acute Chief Medical Officer, 2018)

The presentation of data to referring providers on local SNF performance was also a recurrent sub-theme. One system leader emphasized connecting choice of SNF to patient outcomes.

> They've [physicians have] been so [blinded]… They don't want to see the effect, that any of these choices affect what they perceive as quality of care… but if the ACO can say, "Hey, Doc, you know, we're working closely with facilities A, B, C, and D… That's why we want you to send your patients there," I would hope they would understand… and if we can show that data, saying those SNFs are having better outcomes… getting the patient home… the patient has less chance of readmission… If the patient has less time in the SNF facility, their home is where they want to be, and where you want them to be… If we can communicate those things, I think that's where we'll get the buy-in with physicians. (Key Informant ACO B2, Compliance Officer, 2018)

SNF community leadership also repeatedly emphasized that ACO physician education on SNF capability and competency is critical to the delivery of quality care.

> Some physicians don't understand what skilled nurses can and can't do… We hit that roadblock where the expectation is that we do certain medical treatments here that really are not provided in this setting, or that we do one-on-one care here that is not provided in this setting. So, being able to educate physicians on what the true meaning of a skilled nursing facility is, and what our services actually encompass, I think would actually be a benefit. (Key Informant ACO C3, SNF Community Administrator, 2018)

One ACO health system leader cited the failure of team function as a larger driver than physician knowledge or education when considering SNF admissions for ACO patients. This leader felt that the discharge planning process gave too much power to the hospital discharge team members and felt that they had more accountability than the physician in determining the ultimate referral destination SNF for a patient.

> It's not as much the physicians as it as the case managers... Our case managers take the path of least resistance… So they don't care where they send a patient, they just care that this patient falls off of their [discharge] list. That is an internal thing we're working through. And I hope to have a little bit more traction in this area….there's also been some adjustments on reporting structure… So the person that leads [discharge planning at the hospital] is very much in favor of a lot of the stuff that we're doing in the ACO… So I feel like that's going to change. (Key Informant ACO F2 Executive Director, 2018)

Another physician leader shared a similar sentiment discussing both a lack of knowledge and the common occurrence of communication breakdown.

> Physicians and referring clinicians to the SNFs need to know that SNFs are not magical places where everything gets better… That's what we tell people in the hospital… "Oh, we're going to send you to a SNF and you'll be able to walk again. And you'll be all better." …There needs to be more realistic conversations. …Physicians are very focused at whatever their inpatient stay is… And so, the ability to have a prognosis and to say, "You know, really, your mom's not going to walk again"—very few doctors would make that prognosis or have that discussion. (Key Informant ACO C2, Post-Acute Chief Medical Officer, 2018)

SNF leadership also emphasized that the education of patients and families around SNF care and capability was very important. Often, there is a misunderstanding of staffing ratios and proficiency in the post-acute SNF setting versus the acute inpatient hospital.

> …[E]ducation of the family and the realization of what they're about to go into.... when you leave the ICU or you leave the hospital and you're used to having one nurse for three patients or one nurse per five patients, it's a huge difference going from one nurse per five to one nurse per 15, and that is standard across the board… It's still such high acuity… I think that piece would be extremely beneficial. (Key Informant ACO C3, SNF Executive Director, 2018)

Partnership management between ACOs and SNFs spanned several domains within the key informant interviews. Key Informants had opinions on network and evaluation criteria, the possibility of developing future financial incentives, metrics, and the roles of policy and leadership. Education continued to emerge as an embedded and underlying theme, critical to the development of relationships and the creation of processes for relationship implementation that defined the overall structure of the ACO/SNF interaction.

The role and responsibility of the ACO leader was designated as primary. Many key informants shared this opinion:

> The ACO leader has to be the one who sets the overall strategy. And the strategy has to start with someone defining the network, understanding the capabilities of each of the skilled nursing facilities, collecting the data, pulling together those within collaboration network that they're going to be working with…. that's the outside piece. But the inside piece is also critical… You're not going to get anywhere with [the ACO/SNF collaboration] without that work... If your [ACO] inpatient hospital team and your discharge planners are not on board … that ACO leader really has to straddle the inpatient and outpatient world to make [any] effect. (Key Informant ACO 1, Market Medical Director, 2018)

Further comments on the relationships between SNFs and ACOs emphasized the critical nature of developing this relationship.

> I think they're critical… I think they're critical to the success of an ACO. I think every ACO in the country is looking at their post-acute strategy… And the sooner we can pull those provider types into the ACO and start working with them, and educating our doctors that "Hey, these are our preferred partners," …I think then everybody wins. (Key Informant ACO D2, Executive Director, 2018)

Metrics and criteria for partnership were universally discussed, emphasizing the importance of data and data exchange. Critical and measurable components to the contract relationship between ACOs and SNFs were repeatedly listed across all interview categories as guidelines and metrics around LOS, readmission rates and measurement of transfers back to the hospital, and ED utilization. Key informants also discussed star ratings and the systemic conflicts related to their measurement and use.

> …[Y]ou know, of course, people look at the star ratings I don't feel the star ratings are [a] good measurement. I mean they are a nice-to-have; you know you want to make sure they're at least three stars or above, and they have to be three stars or above in order for you to sign a waiver contract but those could change… There's places that are not evaluated yet that are new, but are very good that if you just strictly went with that star rating [you may miss] …you have to look at the length of stay … you have to look at readmissions, you have to look at ED visits. And… you have to look at how quickly somebody sees that patient from when they come into that facility and what the nurse to patient ratio is. So, what is the care in that facility, and do they have [staff] doing care coordination? (Key Informant ACO C2, Director of Population Health, 2018)

Results of the Phase 2 Quantitative Analysis

The remaining four ACOs were analyzed using existing cost and utilization reporting for their top 15 SNFs showing admissions for ACO-attributed patients. These were ranked by total ACO spend and the dependent variables of LOS, readmission rate, and ED utilization were analyzed for each total cohort. The total SNF cohort for each ACO was compared to a subset of preferred SNFs where the ACO engaged in and initiated processes and procedures around data, people, and education. The presence of these processes was defined as depicted in Figure 6. ACO staff verified the presence of all affirmative "yes" process answers for each theme category, and the SNFs with affirmative answers in all three theme categories were then grouped as preferred for each ACO. For the subset of preferred SNFs where these activities were occurring, LOS, readmission rates, and ED rates were grouped and compared to the total to examine trends.

The data for each ACO are presented in Figures 7, 8, 9, and 10 for ACOs B, C, D, and F, respectively. The yellow shading in each figure denotes a preferred SNF within that ACO network. The data dictionary defining each variable and its measurement is provided in Appendix E. Exclusions from population measurements within the data tables were applied according to the definitions defined by CMS (Centers for Medicare and Medicaid Services, 2017a). Application of these exclusions by the data analytics team left the ED utilization variable with poor data quality. For ACOs C and D, there was one SNF excluded from the readmission data due to exclusions. For ACOs C and D, one and two preferred SNFs, respectively, were missing from the top 15 SNF list sorted by total spending.

FIGURE 7: ACO B SNF Cost and Utilization Report

Post-Acute Care
Claims Incurred January 2018 through September 2018, Paid through November 2018
Cost & Utilization Report
Population: Attributed Members Excluding Non-Datashare Beneficiaries

	Skilled Nursing						Prior Proximal		Post-Discharge			Transfer %	ER	RUG	
Facility	Admits	Days	Paid	Paid/ Admit	Paid/ Day	ALOS	CMI	ALOS	Transfer (0-1 Days)	Re-Admit (2-30 Days)	Home Health (0-3 Days)	Short-Stay (0-3 LOS)	Visits/ 100 Days	Ultra Admit %	CMS Nursing Home Star Rating
A	171	5,072	$1,980,159	$11,580	$390	29.7	2.07	5.9	19.6%	11.5%	42.6%	17.2%	0	77.8%	
B	165	5,012	$1,691,132	$10,249	$337	30.4	1.80	6.1	29.0%	12.4%	33.8%	14.3%	0	39.4%	
C	141	3,540	$1,405,881	$9,971	$397	25.1	1.91	6.7	33.9%	15.6%	34.9%	13.5%	0	56.7%	
D	155	3,494	$1,378,379	$8,893	$394	22.5	1.93	6.1	29.2%	6.9%	30.0%	10.5%	1	45.2%	
E	79	3,458	$1,349,693	$17,085	$390	43.8	2.00	6.0	23.5%	8.8%	48.5%	18.8%	0	74.7%	
F	146	3,052	$1,228,230	$8,413	$402	20.9	1.83	5.7	18.8%	12.5%	45.3%	33.3%	0	52.1%	
G	119	3,128	$1,177,838	$9,898	$377	26.3	1.85	7.0	23.6%	8.5%	21.7%	32.0%	0	45.4%	
H	105	2,643	$1,011,759	$9,636	$383	25.2	1.97	6.1	26.7%	10.5%	11.6%	8.7%	0	33.3%	
I	78	2,300	$813,232	$10,426	$354	29.5	2.02	6.3	34.3%	4.5%	28.4%	8.7%	0	46.2%	
J	97	2,151	$805,880	$8,308	$375	22.2	1.79	5.6	20.7%	5.7%	29.9%	16.7%	0	44.3%	
K	47	2,000	$728,983	$15,510	$364	42.6	1.76	5.2	21.4%	7.1%	35.7%	33.3%	0	66.0%	
L	74	1,594	$690,193	$9,327	$433	21.5	1.82	5.5	34.0%	8.5%	42.6%	25.0%	0	68.9%	
M	55	1,391	$597,381	$10,861	$429	25.3	1.77	6.8	22.2%	4.4%	33.3%	20.0%	0	76.4%	
N	49	1,482	$597,139	$12,187	$403	30.2	1.99	9.1	24.3%	13.5%	27.0%	0.0%	0	46.9%	
O	62	1,324	$592,249	$9,552	$447	21.4	1.68	5.7	14.0%	20.9%	48.8%	16.7%	0	80.6%	
Total	**2,645**	**72,197**	**$27,334,864**	**$10,335**	**$379**	**27.3**	**1.86**	**6.0**	**25.4%**	**10.1%**	**33.5%**	**14.7%**	**0**	**50.7%**	

FIGURE 8: ACO C SNF Cost and Utilization Report

Post-Acute Care
Claims Incurred January 2018 through September 2018, Paid through November 2018
Cost & Utilization Report
Population: Attributed Members Excluding Non-Datashare Beneficiaries

	Skilled Nursing						Prior Proximal		Post-Discharge			Transfer %	ER	RUG	
Facility	Admits	Days	Paid	Paid/ Admit	Paid/ Day	ALOS	CMI	ALOS	Transfer (0-1 Days)	Re-Admit (2-30 Days)	Home Health (0-3 Days)	Short-Stay (0-3 LOS)	Visits/ 100 Days	Ultra Admit %	CMS Nursing Home Star Rating
A	38	925	$455,569	$11,989	$493	24.3	1.64	7.2	11.4%	5.7%	28.6%	0.0%	0	73.7%	
B	29	838	$367,702	$12,679	$439	28.9	2.14	8.5	41.7%	4.2%	20.8%	0.0%	1	62.1%	
C	18	731	$326,513	$18,140	$447	40.6	1.65	5.9	18.8%	18.8%	37.5%	0.0%	0	66.7%	
D	31	639	$324,618	$10,472	$508	20.6	1.78	8.4	16.7%	26.7%	50.0%	0.0%	0	90.3%	
E	20	681	$298,718	$14,936	$439	34.1	2.19	7.7	42.9%	7.1%	14.3%	0.0%	0	65.0%	
F	40	676	$296,534	$7,413	$439	16.9	1.81	7.7	16.2%	13.5%	35.1%	0.0%	0	47.5%	
G	20	580	$284,935	$14,247	$491	29.0	2.06	5.7	10.5%	21.1%	47.4%	50.0%	0	85.0%	
H	27	579	$278,690	$10,322	$481	21.4	1.86	10.8	39.1%		17.4%	11.1%		77.8%	
I	22	552	$255,370	$11,608	$463	25.1	1.60	5.5	17.6%	17.6%	29.4%	0.0%	0	72.7%	
J	21	452	$223,766	$10,656	$495	21.5	2.16	7.5	31.3%	12.5%	25.0%	0.0%		95.2%	
K	18	467	$219,051	$12,169	$469	25.9	1.82	5.4	29.4%	5.9%	17.6%	20.0%	0	66.7%	
L	11	462	$211,796	$19,254	$458	42.0	1.70	6.4		66.7%	66.7%		1	63.6%	
M	21	544	$210,268	$10,013	$387	25.9	1.88	7.8	14.3%	14.3%	28.6%	0.0%	1	38.1%	
N	16	436	$206,176	$12,886	$473	27.3	1.49	6.4	16.7%	8.3%	58.3%	100.0%		87.5%	
O	12	341	$202,835	$16,903	$595	28.4	1.67	6.5	30.0%	10.0%	30.0%	33.3%	0	75.0%	
Total	**812**	**20,218**	**$9,096,867**	**$11,203**	**$450**	**24.9**	**1.84**	**7.3**	**26.0%**	**12.9%**	**28.3%**	**11.7%**	**0**	**62.4%**	

FIGURE 9: ACO D SNF Cost and Utilization Report

AC
Claims Incurred January 2018 through September 2018, Paid through November 2018
Cost & Utilization Report
Population: Attributed Members Excluding Non-Datashare Beneficiaries

	Skilled Nursing						Prior Proximal		Post-Discharge			Transfer %	ER	RUG	
Facility	Admits	Days	Paid	Paid/ Admit	Paid/ Day	ALOS	CMI	ALOS	Transfer (0-1 Days)	Re-Admit (2-30 Days)	Home Health (0-3 Days)	Short-Stay (0-3 LOS)	Visits/ 100 Days	Ultra Admit %	CMS Nursing Home Star Rating
A	101	1,689	$740,161	$7,328	$438	16.7	2.10	6.2	17.2%	9.7%	44.1%	12.5%	0	46.5%	
B	77	1,620	$723,059	$9,390	$446	21.0	1.89	7.0	16.4%	10.4%	47.8%	9.1%	0	67.5%	
C	41	1,182	$520,156	$12,687	$440	28.8	2.05	6.6	18.2%	6.1%	36.4%	16.7%	0	78.0%	
D	58	1,175	$502,062	$8,656	$427	20.3	2.24	6.1	17.3%	11.5%	51.9%	22.2%	0	48.3%	
E	40	907	$415,479	$10,387	$458	22.7	1.74	6.6	16.7%		43.3%	20.0%	0	42.5%	
F	30	900	$383,198	$12,773	$426	30.0	2.08	9.2	3.8%	11.5%	46.2%	0.0%		76.7%	
G	21	668	$313,267	$14,917	$469	31.8	2.18	6.2	6.3%	6.3%	37.5%	0.0%		90.5%	
H	23	565	$269,081	$11,699	$476	24.6	1.43	7.4	28.6%	9.5%	28.6%	0.0%	0	78.3%	
I	25	527	$244,631	$9,785	$464	21.1	2.18	7.0	8.3%	8.3%	66.7%	0.0%		76.0%	
J	15	507	$218,022	$14,535	$430	33.8	1.61	6.0	21.4%	14.3%	57.1%	0.0%		66.7%	
K	24	440	$197,074	$8,211	$448	18.3	1.90	7.1	13.6%	4.5%	45.5%	33.3%	0	50.0%	
L	21	399	$159,180	$7,580	$399	19.0	1.82	7.9	11.1%	22.2%	50.0%	0.0%	0	19.0%	
M	15	411	$151,710	$10,114	$369	27.4	1.92	7.4	27.3%	9.1%	27.3%	0.0%	1	53.3%	
N	14	326	$140,645	$10,046	$431	23.3	1.42	6.9	30.8%	15.4%	23.1%	50.0%	1	42.9%	
O	20	318	$132,300	$6,615	$416	15.9	1.84	6.2	36.8%	10.5%	36.8%	28.6%		20.0%	
Total	**636**	**14,520**	**$6,306,856**	**$9,916**	**$434**	**22.8**	**1.96**	**6.7**	**17.6%**	**9.6%**	**41.8%**	**12.4%**	**0**	**57.9%**	

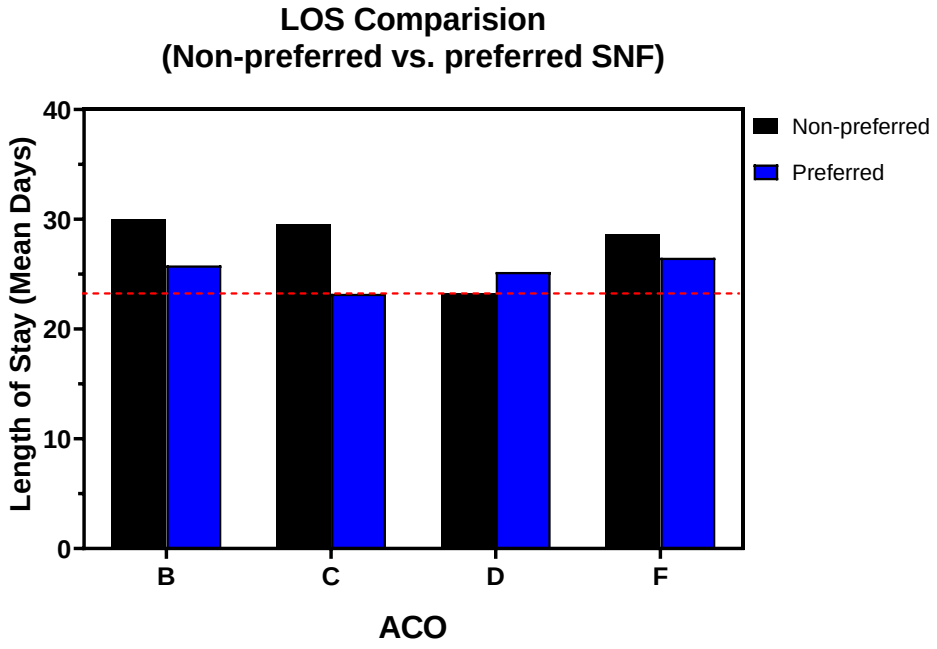
FIGURE 10: ACO F SNF Cost and Utilization Report

Post-Acute Care
Claims Incurred January 2018 through September 2018, Paid through November 2018
Cost & Utilization Report
Population: Attributed Members Excluding Non-Datashare Beneficiaries

	Skilled Nursing						Prior Proximal		Post-Discharge			Transfer %	ER	RUG
Facility	Admits	Days	Paid	Paid/ Admit	Paid/ Day	ALOS	CMI	ALOS	Transfer (0-1 Days)	Re-Admit (2-30 Days)	Home Health (0-3 Days)	Short-Stay (0-3 LOS)	Visits/ 100 Days	Ultra Admit %
A	94	2,923	$1,316,396	$14,004	$450	31.1	1.71	6.0	17.6%	9.50%	13.5%	7.7%	0	87.2%
B	92	2,932	$1,257,938	$13,673	$429	31.9	1.76	5.2	24.1%	6.30%	32.9%	0.0%	0	84.8%
C	89	2,761	$1,077,841	$12,111	$390	31.0	1.71	6.3	36.5%	3.80%	26.9%	10.5%	1	55.1%
D	83	2,627	$1,061,479	$12,789	$404	31.7	1.80	4.4	18.2%	1.50%	15.2%	0.0%	0	72.3%
E	80	2,095	$926,810	$11,585	$442	26.2	1.82	4.2	20.3%	6.80%	20.3%	8.3%	0	83.8%
F	112	1,945	$889,009	$7,938	$457	17.4	1.78	4.4	9.6%	7.40%	29.8%	22.2%	0	65.2%
G	65	1,847	$827,373	$12,729	$448	28.4	1.61	4.5	20.8%	6.30%	29.2%	30.0%	0	78.5%
H	76	1,852	$816,012	$10,737	$441	24.4	1.88	5.8	28.1%	6.30%	21.9%	0.0%	0	73.7%
I	99	1,852	$814,093	$8,223	$440	18.7	1.88	4.8	20.5%	8.20%	24.7%	13.3%	0	64.6%
J	60	1,790	$761,674	$12,695	$426	29.8	1.66	4.7	34.7%	12.20%	20.4%	5.9%	0	78.3%
K	70	1,641	$679,793	$9,711	$414	23.4	2.34	5.3	19.3%	21.10%	10.5%	27.3%	0	55.7%
L	63	1,632	$672,423	$10,673	$412	25.9	1.89	5.3	25.6%	16.30%	16.3%	18.2%	0	61.9%
M	37	1,704	$666,850	$18,023	$391	46.1	1.70	5.1	19.0%	4.80%	14.3%	25.0%	0	75.7%
N	92	1,578	$480,280	$5,220	$304	17.2	1.91	3.8	6.5%	6.50%	27.3%	20.0%	0	2.2%
O	37	1,438	$460,854	$12,456	$320	38.9	1.67	6.3	33.3%	5.60%	33.3%	33.3%		37.8%
Total	**2,063**	**58,566**	**$23,157,586**	**$11,225**	**$395**	**28.4**	**1.78**	**5.5**	**25.0%**	**8.3%**	**21.2%**	**10.2%**	**0**	**57.2%**

The LOS comparison between ACO preferred and non-preferred ACO networks is shown in Figure 11.

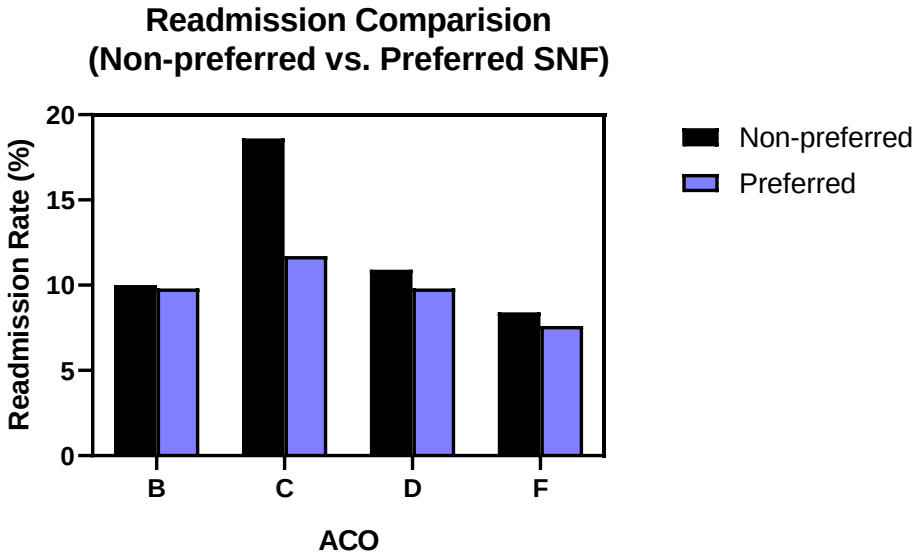
FIGURE 11: LOS comparison for non-preferred versus preferred SNFs



The red baseline in Figure 11 refers to the national average LOS, which is referenced at 23 days (PocketSense, 2017). While directionally it may appear that ACOs B, C, and F have slight improvement in the preferred SNF LOS, these data are not risk adjusted and it will take a more detailed, future claims analysis to determine whether the correlation between ACO process and LOS is positive. It should also be noted that ACO D deliberately chose one lower quality SNF within their preferred group because they knew their ACO patient referral volume was high and they decided to work with this SNF using best practices to improve quality care delivery rather than exclude them from their preferred network.

Comparison of 30-day readmission rates by ACO is shown in Figure 12.

FIGURE 12: Thirty-day readmission rate comparison for non-preferred versus preferred skilled nursing facilities



Within the ACO cohort, it directionally appears that ACO C may have a genuine improvement in 30-day readmission rates within their preferred SNF network. Of the four ACOs, ACO C has been the most aggressive across their geography, providing intensive onsite staff services as well as establishing detailed processes around communication and data exchange upon initial SNF admission. ACO C uses the cost and use data in weekly face-to-face meetings with SNF care teams in a greater number of preferred facilities than the other ACOs. It could be hypothesized that their increased attention to data, people, and process is indeed influencing this readmission variable; however, further analysis would be recommended to verify this conclusion.

Comparison of ED utilization is more challenging due to the data quality and exclusions mentioned above. As illustrated in Table 8, the ED utilization/100-day rate was 0, 1, or null for the ACO cohort. There is no difference in ED utilization values for preferred or non-preferred SNFs. Additional detailed claims analysis will be required in future studies to elucidate any type of true association for this measure.

TABLE 8: Total ED utilization by ACO: ED visits/100 days from the top 15 SNFs

ACO	Total No. of SNF Admissions	ED Visit/100 Days
B	2,645	0
C	812	0
D	636	0
F	2,063	0

Case mix index (CMI) and total cost were also compared in aggregate for each ACO as listed in Table 9. The use of the existing cost and use reports left the data without risk adjustment for the ACO populations admitted to community SNFs. This is another data limitation. The analytic report does include a CMI, which, together with the total spending, could be used as a general proxy for risk. CMS defined CMI as "A payment system that measures the intensity of care and services required for each resident, and translates these measures into the amount of reimbursement given to the facility for care of a resident. Payment is linked to the intensity of resource use…" (Centers for Medicare and Medicaid Services, 2005; Clauser & Fries, 1992). One hypothesis is that the higher the CMI, the "sicker" the patients admitted to the SNF; therefore, this could be a loose proxy for risk adjustment when total cost is also accounted for.

TABLE 9: Comparison of case mix index and total cost for SNF admissions by ACO

ACO	Case Mix Index for All Admissions	Total Cost for All Admissions
B	1.86	$27,334,864
C	1.84	$9,096,867
D	1.96	$6,306,856
F	1.78	$23,157,586

Given the choice by ACO D to include a lower quality rated SNF, it is not surprising that the CMI is higher for that ACO. That SNF, included in their preferred network, has a higher population of lower income and Medicaid beds and a lower star rating by CMS. It could be hypothesized that the admitted population within that SNF indeed does have more

comorbidities. As reiterated above, future additional cost and claims analyses will be required to verify this.

Review of the literature to examine national SNF utilization standards revealed a Milliman report from December 2016 showing 2014 national averages for LOS, 30-day readmission rate, and ED utilization (Herbold & Larson, 2016). Figure 13, from Herbold and Larson (2016), is provided for comparison to the above data and to substantiate that although this analysis is not risk adjusted or detailed with further claims, the reported values within this analysis are consistent.

FIGURE 13: Variation in SNF utilization metrics

		Inpatient Transfer Rate			Inpatient Readmission Rate		
RUG Level	Percent of Discharges	20th Percentile	50th Percentile	80th Percentile	20th Percentile	50th Percentile	80th Percentile
Ultra High	78.4%	10.5%	15.3%	21.0%	6.3%	9.2%	12.3%
Very High	16.4%	10.7%	16.9%	23.7%	6.6%	9.8%	13.7%
Other Levels	5.2%	5.7%	10.5%	23.4%	6.1%	9.3%	12.7%

		Average ER Visits Per 100 Days			Average Length of Stay		
RUG Level	Percent of Discharges	20th Percentile	50th Percentile	80th Percentile	20th Percentile	50th Percentile	80th Percentile
Ultra High	78.4%	0.19	0.30	0.48	28.6	34.9	42.1
Very High	16.4%	0.20	0.38	0.60	22.5	27.9	34.1
Other Levels	5.2%	-	0.13	0.60	9.4	13.9	21.6

Note: The figure presents variation in SNF utilization metrics by resource utilization group (RUG) level nationally for the 2014 Medicare fee-for-service population. Because of concerns with the credibility of results of smaller SNFs, Herbold and Larson (2016) limited the results in this chart to SNFs with at least 50 discharges in each RUG level, and they combined all RUG levels below very high into "other levels."

Source: Reproduced from Figure 2 in (Herbold & Larson, 2016).

CHAPTER 5: DISCUSSION

There is clear evidence from the key informant interviews and the qualitative research data to suggest that data, people, and education are all important themes that define best practice processes and procedures within successful relationships between an ACO and a SNF. Specific operational processes and procedures were developed and implemented within each ACO network that could be categorized around each of these themes, and each ACO directed these activities locally within their individual SNF networks. The presence or absence of these specific processes further defined the inclusion or exclusion of a SNF as preferred or not within each ACO network. This study attempted to correlate these processes and procedures around the themes of data, people, and education to LOS and readmission rates within the quantitative analysis.

While the quantitative data have shortcomings due to data gaps as well as data limitations and availability from the national population health organization, there remains some generalizable application of the three qualitative themes that could, in future work, help to define specific interventions that will more definitively influence patient health outcomes of SNF LOS, SNF readmission rate, and ED utilization from SNF to hospital.

Post-acute network development and SNF partnership management remain growing and evolving functions for ACOs nationwide. The four remaining ACOs included in this cohort were more mature in their ACO/SNF relationship development than the two ACOs that were new to their CMS contract and exited the program in early 2019 due to financial insufficiencies. This research sought to elucidate ACO best practices around post-acute care contracting specific to

SNF relationships. The organizational burden for the SNF relationship sits squarely on the ACO leadership, who cited communication, data, and education challenges across their respective health systems as critical when creating preferred provider SNF networks.

The emergence of people as a theme for the key informants was also recently discussed in the literature. Mileski et al. (2017) performed a study that investigated the applicability and effectiveness of quality improvement initiatives in decreasing the rate of avoidable 30-day, SNF-to-hospital readmissions. The principal conclusion by Mileski et al. (2017) was that the most common facilitator was the incorporation of staff at the SNF and "…collaboration in case management by teams of practitioners working with the patient will cause any barriers to care to be quickly identified, to mitigate readmissions overall…" (p. 221).

Some of the CMS contracts for ACOs allowed SNF admissions under a 3-day waiver (Centers for Medicare and Medicaid Services, 2018b). This allows an aligned beneficiary to be eligible for Medicare covered SNF services when admitted to a SNF without a 3-day qualifying inpatient hospital or previous SNF stay, including beneficiaries who are in the hospital for fewer than three days or admitted directly from a physician's office (Centers for Medicare and Medicaid Services, 2018b). While analysis of waiver use is beyond the scope of this research, participation in a waiver process as a contract benefit with CMS may allow ACOs additional opportunities to influence timing and efficiency of communication between hospital and SNF.

Many key informants cited the timeliness of information exchange between hospital and SNF as an influence over quality of care delivered within a SNF. Communication between the ACO and SNF may accelerate if an ACO patient was directly admitted to a SNF under a waiver that is a benefit of the ACO contract with CMS, therefore eliminating the 3-midnight requirement in the hospital prior to SNF admission.

Comparison of LOS across the remaining ACOs in the study cohort largely showed no difference between preferred and non-preferred SNFs. Further study will be required, including risk adjustment, to draw any definitive conclusions between best practice ACO processes and effect on patient LOS.

Comparison of readmission rate across the study cohort also showed minimal differences between preferred and non-preferred SNFs for all ACOs except ACO C. While these preliminary data are not significant within this analysis, further study is warranted to see whether the best practice processes and procedures used by this ACO around data, people, and education indeed influence the readmission rate outcomes.

Readmission rates could be used as a proxy for quality of care delivery within the SNF. Readmission within 30 days of hospital discharge is very common, affecting 20% of Medicare beneficiaries, and SNFs are the most common setting for post-acute care in the United States (Mendu et al., 2018). Medicare patients discharged to a SNF have a 25% likelihood of 30-day readmission and in some studies, up to 67% of readmissions were rated as potentially preventable (Mendu et al., 2018). In a recent study by Mendu et al. (2018), a survey of SNF readmissions showed that patients felt that their readmission to the hospital was avoidable 34% of the time, and that inadequate SNF treatment contributed to the majority of those readmissions.

Mileski et al. (2017) described several barriers to successful improvement in SNF readmission rates. They cited a lack of leadership engagement, which acted as a barrier to success when leaders did not see a compelling reason to invest time and energy into quality improvement initiatives to reduce readmissions (Mileski et al., 2017). ACO C had a senior clinical leader onsite weekly to engage and solidify commitment and relationship with SNF staff. Mileski et al. (2017) also pointed out that “lack of staff education was a noted barrier to success because staff lacked the

knowledge to care for the patients most likely to be readmitted to acute care settings" (p. 221). ACO C provided, through education at the SNF, more immediate metrics to measure improvements and more accurate criteria in tracking data. ACO C leadership also proactively addressed the implementation barriers experienced by many SNFs as they struggled to adopt new processes and procedures by placing people onsite weekly and ensuring clear communication processes.

It is unfortunate that the data supplied by the population health company on ED utilization had gaps and exclusions. The principal investigator asked for a follow-up analysis with clinical leadership from ACOs B and F and received differing conclusions. ACO F leadership felt that the ED rates were indeed low, and this is supported by some of the data cited in the Milliman report (Herbold & Larson, 2016). ACO B felt that ED utilization was underreported and, in a quick analysis of another SNF utilization report used by the internal case management staff, found additional cases of ED use. More detailed analysis on this variable in the future will be required to draw any definitive conclusions.

The CMI comparison data across the ACO cohort showed variation of CMI values from 1.78 to 1.96. It is unclear in this analysis if this spread is significant enough to conclude that there is significant variation in the population of admitted patients. The volume of utilization, as reflected in paid amounts, was also variable, ranging from $6,306,856 to $27,334,864, and no definitive conclusions may be drawn other than to say that the post-acute spending for the higher-volume ACOs is large and presents an opportunity for additional study. Future analysis of spending per beneficiary may be a better measure of utilization.

The principal investigator's employment by the national population health company introduces a bias into the data collection, as she has professional relationships with all ACOs included within the study cohort. However, this research does address the gap in the literature

which seeks to specifically define best practice process elements within ACO/SNF relationships that may result in improved patient health outcomes. Specific delineation of these best practices contributes new theory toward ACO/SNF relationship development and ultimately may influence SNF selection when ACO leaders are designing and creating preferred networks.

CHAPTER 6: PLAN FOR CHANGE

ACOs have a contractual, incentivized agreement with the CMS to ensure that attributed Medicare patients receive cost-efficient, high-quality care, and it is hypothesized that if an ACO enters a contractual relationship with a SNF, there may be correlations to positive patient outcomes for cost and quality due to the contracted relationship. The author plans to use the preliminary findings outlined in this research to disseminate specific evidence-based relationship components that, when implemented using ACO processes and procedures, positively influence cost and quality of SNF transitions. Successful implementation will be defined when evidence-based practice (EBP), early adoption, and education are addressed and correlated with measurable health outcomes.

As ACOs have become more prevalent nationwide as a vehicle for coordination of clinical care, there is an increased effort to create preferred networks of post-acute providers between ACOs and their geographic community. There is a distinct gap in the literature, as there is currently no best practice defining the relational process elements required to include in a post-acute contract between an ACO and a SNF. To date, there is no EBP defined for ACOs that contract with SNFs as they develop their preferred post-acute network.

This research sought to establish the presence of specific value-based procedures as a best practice recommendation between ACO and community SNFs. Development of specific ACO-led processes within the ACO/SNF relationship may be then classified as an intervention, and with added future research, as an EBP. Through a mixed-methods approach, the presence or absence of an ACO/SNF relationship was generally associated with specific and measurable

patient health outcomes (readmission rates, LOS in a SNF) and those outcomes were then related to specifically defined ACO processes that contribute to SNF quality. Future contracts will act as a proxy for an EBP, and the intention of this dissertation is to contribute meaningful evidence to support individual contractual components, defined as successful ACO behaviors. Once this meaningful evidence is further established, then Everett's diffusion theory and Kotter's leading change theory will be used to educate and disseminate this information as a best practice.

Successful implementation of the contractual intervention between an ACO and community SNFs will require initial acceptance, appropriateness, and feasibility. Early adoption is an anticipatory determinant and a critical determinant to disseminate the importance of creating contractual relationships between ACOs and SNFs. The primary strategy to encourage early adoption will be to use targeted educational efforts for ACOs to reinforce a climate of value and emphasis on quality.

This author has extensive national and state relationships and plans to present these preliminary findings illustrating the three emerging themes of data, people, and education at both state and national meetings. To date, the author has received one invitation to present at the Duke University Geriatric Workforce meeting and plans to apply for presentation at the National Association for Accountable Care Organizations fall meeting where she has been a prior speaker.

Developing an organizational climate of value to accelerate early adoption requires strong leadership and defined educational efforts. Engaging stakeholders and creating leadership champions is a critical and necessary underpinning to every effort supporting ACO and SNF relationships and future contracts. The key informants supported this theory by repeatedly discussing the role of the ACO leader as a primary driver of change. As discussed by Willging, Green, Gunderson, Chaffin, and Aarons (2015),

> Across the spectrum of implementation sites, policymakers referred to the presence of strong leaders who recognized the benefits of EBPs and advocated for them as a requirement for successful implementation and eventual sustainment. Twenty-five percent of policymakers explicitly stated that state and county leadership must be willing to "champion" interventions. (p. 28)

The author will be able to leverage her strong relationships with health system ACO executives nationally to initiate dissemination of specific ACO post-acute processes and procedures that showed positive associations to LOS and readmission rates.

Specifically, a curriculum for provider education across any ACO will educate referring clinicians on the importance of the ACO/SNF relationship. As reinforced by the key informant interview data, physician education around SNF capability was a critical factor in transition of care from hospital to SNF and ultimate choice of SNF for admission. Aggregation efforts within the community, led by ACO leadership, will gather community SNFs and share process and outcome metrics for ACO-affiliated patients at the SNF level.

All of the ACOs participating in this research had some level of community connectivity with higher-volume SNFs. Some, like ACO C, were more explicitly organized and had more mature processes implemented around the themes of data, people, and education. Building on this initial positive trend, it will be important to illustrate and educate future ACO leadership on successful and meaningful SNF interventions evidenced by improved LOS and readmission rates as proxies for quality SNF care.

Many of the ACOs within this study cohort also have the advantage of employing primary care practices within their network. Leveraging these system relationships can allow ACOs to create supportive policies to be implemented around improved access for SNF discharged patients back into primary care. Creating this climate of value will lend support to

system redesign, which also supports and potentially will positively influence SNF readmission rates upon discharge.

Educational efforts describing SNF capability and quality for providers at ACO participating primary care practices as well as with the discharge planners at all ACO-affiliated hospitals are two examples of patient-driven processes that may benefit from redesign through education. Selection of a SNF at the time of transition may be better informed through data sharing. Example scorecards for SNF metrics and performance data will be shared across ACO networks nationally, encouraging adoption of education and data sharing processes within other, less mature ACOs to accelerate their ACO/SNF preferred network development.

These scorecards, created by the ACO leadership, based on critical contractual components and procedures, will detail the collaboration process requirements as best practices between ACO and SNF and discuss data provided by the ACO on readmissions, ED utilization, and LOS. Care delivery strategies between ACO and SNF will be documented and tabulated such that multiple facilities in a given community can be compared side by side. An example of such a scorecard is presented in Figure 14. The author is supporting this education and data sharing dissemination nationally as part of her role with the national population health company.

Future and continued educational efforts will require a blended implementation strategy to address the overall system of care as ACO Medicare beneficiaries transition from the hospital to a selected SNF. In parallel, the presence of a contractual relationship will need to be accepted and adopted more consistently by ACOs as an evidence-based intervention, requiring education, stakeholder engagement, and transformational leadership.

FIGURE 14: Example SNF collaborative scorecard results

Requirement	Metric	Target	Point Value	Sept 2017 Results
Collaboration Requirements	SNF primary or secondary clinical point of contact will meet with ACOCare team to discuss patient updates for all ACO patients admitted to the SNF	Attendance 100% of time	25	**25**
	Attend Collaboration Sessions	Attendance 100% of time	15	**15**
Scorecard Review	SNF will review data provided by ACO and Hospital specific to scorecard assessment and will work to resolve questions in a timely manner	Recognition and resolution of issues within 10 business days of receipt	10	**10**
SNF and ACO Care Delivery Strategy	ACO Providers, including physicians, advanced care providers (i.e., nurse practitioners, and physician assistants)("ACPs"), case management, and care coordination staff, are allowed access to patients within the SNF	100% of the time	25	**25**
	SNFs will provide the ACO with MDS form (section gg at a minimum) upon admission and work with ACO to develop an estimated length of stay for each ACO patient admitted within 36 hours of notification by a member of the ACO staff	Data available 5 business days per week	25	**25**
			Total Score	**100**
			Collaborative Average Score	**100**

Extrapolating the creation of an ACO/SNF contractual relationship and defining the successful implementation of evidence-based interventions in public-sector human service systems depends on several outer-context implementation determinants, including policies, funding, and contracting (Aarons, Hurlburt, & Horwitz, 2011). In addition, the inner-context determinants of organizational characteristics, workforce, and fiscal viability factors must also be considered (Willging et al., 2016). Government policies, CMS regulations, and contracting procedures will critically influence local ACO implementation contexts and support or jeopardize the early adoption and institutionalization of relationship contracting and development of best practice processes as an evidence-based intervention within these systems (Willging et al., 2015).

Plans for change will be sequential and reinforcing as ACO/SNF networks mature. First, Everett's diffusion theory will be used to as a framework to educate ACO patients and providers

and community SNFs on the importance of coordinated care. Not all ACOs include hospitals and every ACO faces the challenge of tracking its beneficiaries when they are admitted to out-of-network, non-preferred, outside SNFs. The author will adopt Everett's five stages of adoption: knowledge/awareness, persuasion/interest, decision/evaluation, implementation/trial, and confirmation/adoption (Rogers, 2004). Innovators and early adopters will influence the early majority as they show success along the ACO/SNF relationship continuum. Plans for change will include best practices around process, aggregated from this study as well as cumulative national ACO input as ACOs collectively mature in their development around ACO/SNF preferred networks. Measurement of process may then be used as a proxy for quality of care inside the SNF as discussed within the Donabedian (1988) framework, and when correlated to individual ACO/SNF network outcomes.

This research defines a set of key procedural themes that, when mapped to specific ACO processes, directionally validate an effect on patient outcomes. Helping ACOs identify distinguishing characteristics of community SNFs that may influence quality of care delivery in the post-acute setting will allow successful and preferred SNF networks of care to be created that will reinforce improved quality and controlled post-acute costs.

The author will use Kotter's eight steps of change to identify and promote best practices for creating post-acute relationships between ACOs and SNFs. Joint assessment, planning, and implementation of care coordination and communication processes and initiation of contractual agreements could be used to create a climate for change, engaging the entire network and, finally, implementing and sustaining process change across the ACO (Kotter, 1996). Lastly, a reinforcing loop of diffusion theory must again be used to educate other, less mature ACOs on the best practices and principles of ACO/SNF contracting. The author's nationwide influence

through her ACO and SNF relationships coupled with continued maturity, education, and ongoing interactions through her employer will facilitate these educational efforts.

Figure 15 depicts the entities important for the author to consider when applying the Everett diffusion theory across settings of care. The illustration adapted to the Kotter model emphasizes the execution, coordination, and network development that must occur across the transition of care for the contractual relationship between ACO and SNF to be successful.

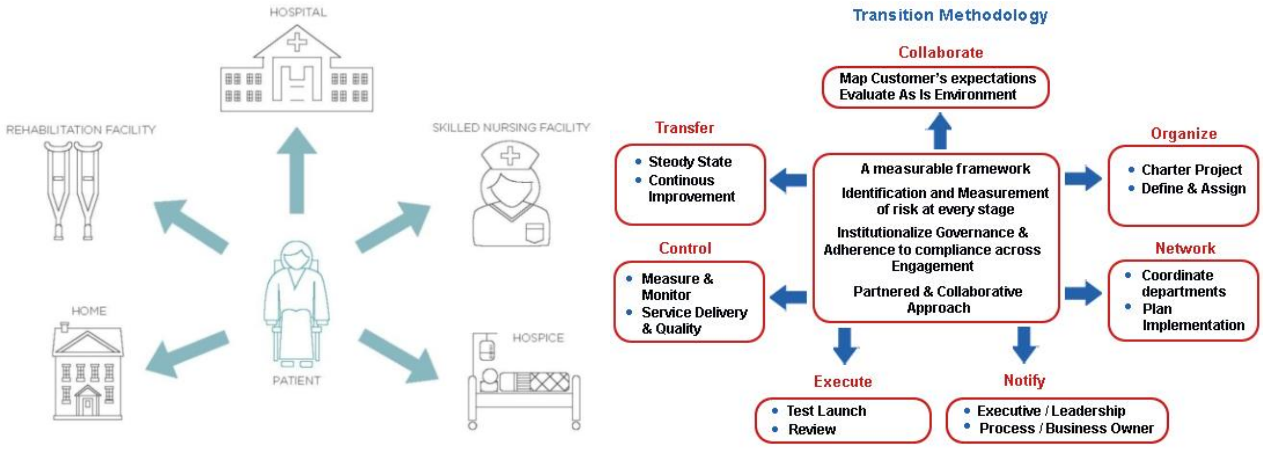
FIGURE 15: Plans for change

Complex Systemic Process

- Everett's Diffusion Theory

Measurable Framework for Change

- Kotter's Leading Change Theory



Source: The left image is from Google images. The right image is from Pacific BPO (https://www.pacificbpo.com/how-we-deliver/transition-methodology).

The three Kotter domains of control, collaboration, and notification are critical to successful ACO/SNF relationship development efforts. The domain of control will use data and metrics to create urgency across the ACO leadership and will emphasize the importance of this effort. The domain of collaboration will leverage the theme of people to create a coalition of value within the ACO system and will demonstrate the value of added resourcing. The

domain of notification will embody the theme of education to illustrate the vision for change as ACO/SNF networks mature nationally.

The Consolidated Framework for Implementation Research (CFIR) suggests that successful network implementation can be influenced by (a) intervention characteristics (evidentiary support, relative advantage, adaptability, trialability, and complexity), (b) the outer setting (patient needs and resources, organizational connectedness, peer pressure, external policy, and incentives), (c) the inner setting (structural characteristics, networks and communications, culture, climate, and readiness for implementation), (d) the characteristics of the individuals involved (knowledge, self-efficacy, stage of change, identification with organization, etc.), and (e) the process of implementation (planning, engaging, executing, reflecting, and evaluating) (Damschroder et al., 2009). Adaptation of the CFIR to ongoing ACO and SNF contracting efforts nationwide supports the hypothesis that successful process and procedural implementation necessitates the use of an array of strategies that exert their effects at multiple levels of the implementation context, illustrating required components of effective and successful best practices.

Strategic intervention design requires clear processes. As discussed by Colquhoun, Squires, Kolehmainen, Fraser, and Grimshaw (2017), four steps common to intervention design include barrier identification, linking barriers to intervention component selection, use of theory, and user engagement. While the best order for these tasks across post-acute networks is not known, nor do we know what additional tasks are required, additional understanding of these tasks will help prioritize relationship development and process design efforts between ACOs and SNFs. The author's continued clinical practice in a SNF, coupled with her national leadership in post-acute care and population health, makes her uniquely qualified to identify and address

barriers to implementation and dissemination of best practices for ACO/SNF network development.

The Exploration Preparation Implementation Sustainment model emphasizes outer- and inner-context factors and segments the process of scaling up an intervention into four phases: exploration, preparation, implementation, and sustainment (Aarons et al., 2011). This model underscores the importance of inner-context factors associated with organizations and service providers (the SNF) and the outer-system level of the broader environment in which provider agencies operate (the ACO). This research addresses both inner- and outer-context factors as the key informant interviews spanned both realms. Key outer-context variables include leadership, policies, regulations and procedures, interorganizational networks, contracts, and funding processes (Willging et al., 2016), many of which were discussed with the key informants when defining the role of ACO leadership in contract development.

Implementation strategy at the organizational level is most proximal to the actual delivery and adoption of EBPs, as it forms the immediate context within which clinicians deliver health services. Organizational contexts can vary in size and complexity, ranging from small group practices to large, multidisciplinary health facilities (Raghavan, Bright, & Shadoin, 2008). Using educational efforts to instill a climate of value will ensure leadership engagement around the greater system organization (the ACO) and the community agency (the SNF). This connection is critical to successful and future contracting relationship efforts and the author's extensive experience in large systems will help mitigate this potential challenge.

This dissertation plan for change contributes to the limited published research that addresses how complex decision making and actions at the policy level shape implementation, dissemination, and sustainment of relationships between ACOs and SNFs. The correlation

between ACO best practices around the themes of data, people, and education will need additional evidence to definitively correlate effective policies and procedures with specific patient outcomes of SNF LOS and readmission rates. It is hypothesized that the qualitatively defined themes of data, people, and communication will be translated into evidence-based best practice process recommendations for specific contractual elements that must be included in future ACO/SNF relationships.

Successful implementation of the contractual processes between an ACO and community SNFs will require acceptance, appropriateness, and feasibility. These early outcome measures are the most critical to ensure longer-term penetration and sustainability as the ACO/SNF networks mature (Proctor et al., 2011). Following successful acceptability, appropriateness, and feasibility, measurable adoption of policies resulting in more defined contract provisions will contribute to later and future study of penetration and reach across the ACO network. Future cost analyses may then be initiated to measure the effects of process implementation of best practices and future association with patient health outcomes.

A general approach to early and middle implementation outcomes measurement following the establishment and adoption of the ACO best-practice contractual processes will be planned as follows (Table 10).

TABLE 10: Approach to outcomes measurement

Outcome	Definition	Future Approach and Future Outcomes of Change Implementation
Acceptance	Measurement of provider engagement and acceptance of accountable care organization (ACO) and skilled nursing facility (SNF) contracting	Mixed-methods approach with key informant interviews first defining necessary contractual elements and themes and then quantitative measurements to measure outcomes. Quantitatively, recording provider attendance at meetings and roadshows, then correlating this increased education toward measured evidence of shifted referral patterns as seen in Medicare claims will show acceptance. For example, examining admission to SNFs that are in or out of the ACO preferred network. The presence of the contract between ACO and SNF will deem a SNF a preferred provider and referrals can be quantitatively measured
Appropriateness	Measurement of usefulness and relevance of ACO and SNF contracting as defined by the ACO as well as the ACO provider community	Mixed-methods approach, first using key informant interviews to define necessary contractual elements and themes and then quantitative measurements of usefulness and practicality from post-workshop surveys. Specific attention will be given to referral patterns from hospital to SNF and measurement of the SNF being in or out of the ACO network
Feasibility	Measurement of suitability at the ACO organization level with specificity toward ACO leadership and ACO provider community	Mixed-methods approach, first using key informant interviews to define suitability and practicality of creating a preferred SNF network and then quantitative measurements of compatibility and practicality of changing referral patterns from post-workshop surveys targeted at the frontline ACO clinicians after educating them on ACO efforts and SNF contracting

Adoption	Measurement of uptake of contracting between ACO and SNF by looking at the ACO organization with specificity toward ACO leadership and ACO provider community	Mixed-methods approach, first using key informant interviews to define necessary contractual elements and themes and then quantitative measurements of future recommendations to examine actual executed contracts and best practice processes between ACO and SNF
Cost	Measured reduction of health care costs, specifically measuring length of stay in the SNF and readmission rates from SNF to hospital	Future recommendation for additional quantitative Medicare claims analysis of ACO patients admitted to SNFs

Effective implementation of provider education efforts and plans for change across the ACO network will address the planned future metrics of increased provider acceptance, improved penetration of best practices, reduction of health care costs, and cost implications as patients are admitted to SNFs that are preferred compared to non-preferred and outside of the ACO network. Adoption of targeted, specific process strategies within a broad implementation approach by this author will allow implementation science research to facilitate and create a nationally accepted ACO/SNF best practice for systemic change that currently does not exist in the literature. Through successful implementation of ACO/SNF contract development strategies, stakeholder engagement, and transformational leadership, establishment of meaningful best practices defining specific contractual elements between ACOs and SNFs will ensure successful patient management and support quality of care delivery in the post-acute setting.

APPENDIX A: ABSTRACTION TABLE

HPM 951 - Final Included Studies - Abstraction Table
Qualitative Studies = Blue
Quantitative Studies = Orange

Title	Authors	Published Year	Journal	Volume	Issue	Pages	Doi	Study	Methods	Study Population	Notes
Medicare postacute care payment reforms have potential to improve efficiency of care, but may need changes to cut costs.	Grabowski, David C; Huckfeldt, Peter J; Sood, Neeraj; Escarce, JosÃ© J; Newhouse, Joseph P	2012	Health Aff (Millwood)	31	9	1941-1950	10.1377/hlthaff.2012.0351	Grabowski 2012	observational review of medicare post acute payment models	Post Acute Care Service Beneficiaries	In this analysis, the OnPoint-30 Readmission Measure from the third quarter of 2013 was included as a measure of case-mix within SNFs. OnPoint-30 calculates an expected readmission rate for each SNF using variables from the Minimum Data Set (MDS) to adjust for illness severity. Aside from risk adjustment, attempt was made at defining partnership quality beyond publicly reported metrics, using a scoring system.
ACO-Affiliated Hospitals Reduced Rehospitalizations From Skilled Nursing Facilities Faster Than Other Hospitals.	Winblad, Ulrika; Mor, Vincent; McHugh, John P; Rahman, Momotazur	2017	Health Aff (Millwood)	36	1	67-73	10.1377/hlthaff.2016.0759	Winblad 2017	Retrospective cohort study	This study concentrated on the noncommercial ACOs funded by Medicare: the Shared Savings Program and the Pioneer ACO model. The study compared rehospitalization rates for beneficiaries served by hospitals in metropolitan areas that were part of Medicare's Pioneer or Shared Savings ACOs with beneficiaries served by hospitals in the same areas that were not	
Creating a network of high-quality skilled nursing facilities: preliminary data on the postacute care quality improvement experiences of an accountable care organization.	Lage, Daniel E; Rusinak, Donna; Carr, Darcy; Grabowski, David C; Ackerly, D Clay	2015	J Am Geriatr Soc	63	4	804-808	10.1111/jgs.13351	Lage 2015	Prospective Cohort Study	Post Acute Care Service Beneficiaries	

The Interventions to Reduce Acute Care Transfers (INTERACT) quality improvement program: an overview for medical directors and primary care clinicians in long term care.	Ouslander, Joseph G; Bonner, Alice; Herndon, Laurie; Shutes, Jill	2014	J Am Med Dir Assoc	15	3	162-170	10.1016/j.jamda.2013.12.005	Ouslander 2014	overview of interact tool	No formal study performed - recommended application of tool in the post acute setting for SNF transfer from hospital	
Prioritizing partners across the continuum.	Maly, Mary Beth; Lawrence, Susan; Jordan, M Kim; Davies, William J; Weiss, Michael J; Deitrick, Lynn; Salas-Lopez, Debbie	2012	J Am Med Dir Assoc	13	9	811-816	10.1016/j.jamda.2012.08.009	Maly 2012	Prospective Cohort Study	SNF Facilities in the LVHN	LVHN developed a Collaborative Partner Prioritization Tool to assess and prioritize skilled nursing facilities in an effort to determine those that would make the best collaborators. SNFs were reviewed based on their volume of mutual patients, quality of care delivery, and their perceived willingness to align with LVHN. Six variables were used to assess these facilities, including (1) patient discharge destination volume by SNF; (2) 30-day all-cause readmission rate to an LVHN hospital; (3) Medicare's Nursing Home Compare 5-Star Overall Rating; (4) the health network affiliation of the SNF's medical director; (5) the level of LVHN-employed or -affiliated physician presence at the SNF; and (6) the SNF's current participation in LVHN-sponsored programs and meetings
The forgotten players in ACO development: Nursing homes	Bilimoria, N.M.	2012	Journal of Medical Practice Management	27	5	309-311		Bilimoria 2012	Perspective opinion	ACOs and SNFs	
Post-Acute Care Reform - Beyond the ACA	Ackerly, D Clay; Grabowski, David C	2014	The New England Journal of Medicine	370	8	689-91		Ackerly 2014	Perspective	ACOs and SNFs	
Driving population health through accountable care organizations.	Devore, Susan; Champion, R Wesley	2011	Health Aff (Millwood)	30	1	41-50	10.1377/hlthaff.2010.0935	Devore 2011	Observational	Examination of ACO quality metrics and structure	Members of the collaborative were selected based on their ability to pursue ACO contracts with payers and to work with a tightly aligned, engaged physician network
Changes in postacute care in the medicare shared savings program.	McWilliams, J Michael; Gilstrap, Lauren G; Stevenson, David G; Chernew, Michael E; Huskamp, Haiden A; Grabowski, David C	2017	JAMA Intern Med				10.1001/jamainternmed.2016.9115	McWilliams 2017	Retrospective cohort study	From 2009 to 2014, authors analyzed data from Medicare claims and enrollment files for a random 20%sample of fee-for-service beneficiaries continuously enrolled in Parts A and B in that year (while alive for decedents) and in the previous year (to assess preexisting conditions)	For analyses of all beneficiaries in the study sample, authors assessed annual per-beneficiary Medicare spending for inpatient care, care in postacute facilities (overall and by facility type), and home health care initiated in the community (out-patient) vs care after a hospitalization or postacute facility stay(postacute). Facility types included SNFs, inpatient rehabilitation facilities, and long-term care hospitals

APPENDIX B: LITERATURE REVIEW QUALITY TABLE

Study Id	Reviewer	Incomplete outcome data for All outcomes - JUDGEMENT	Comments	Incomplete outcome data for Contracting not addressed - BIAS JUDGEMENT	Incomplete outcome data for Length of Stay in SNF- BIAS JUDGEMENT	Incomplete outcome data for SNF readmissions -- BIAS JUDGEMENT	Incomplete outcome data for aco patients in post acute care -- BIAS JUDGEMENT	Other sources of bias - JUDGEMENT	Selective outcome reporting bias	Comments/ Limitations	Conclusions
Grabowski 2012	Lisa	high	no formal outcomes measured other than assessment of payment reforms for post acute services							No formal study	
Winblad 2017	Lisa	high	no information on contracting between aco and snf			low - In addition to the overall thirty-day readmission variable, authors also created rehospitalization variables for shorter time periods Authors created rehospitalization measures for two mutually exclusive periods: 1–3 days, suggesting premature dis-charge or inappropriate placement; and 4–30 days, a possible sign of poor communication of clinical or treatment information between the hospital and the SNF. The readmission also potentially indicated that care at the SNF or other resources were inadequate to prevent a complication requiring acute hospital level care	high - Attribution variables affected attributed ACO patients - retrospective attribution of ACO patients in the Shared Savings Program limits hospitals' ability to know which patients were included in the ACO at the time of discharge to a SNF. Additionally, it is unlikely that a care manager or discharge planner would be able to differentiate between ACO- and non-ACO-attributed patients at the time of discharge	high - the study did not address contractual elements important to ACO affiliation	low - this study examined accountable care organization contract or partnership , and rehospitalization rates of ACO affiliated hospitals		The proportion of patients discharged to SNFs was slightly higher in ACO-affiliated hospitals and increased over time at a higher rate among Pioneer hospitals. The relative reduction in rehospitalizations from SNFs was larger for Shared Savings hospitals (17.7 percent) and for Pioneer hospitals (14.9 percent) than for non-ACO-affiliated hospitals 13.1 percent (Exhibit 3). Thus, both types of ACO-affiliated hospitals demonstrated a larger decrease in rehospitalization rates fromSNFs within thirty days than non-ACO-affiliated hospitals.The relative reduction in rehospitalizationsfrom SNFs within the first three days was evengreater among ACO-affiliated hospitals: 19.1 percent in both Shared Savings and Pioneer hospitals compared to 14.3 percent in non-ACO-affiliated hospital
Lage 2015	Lisa	low	inclusion and exclusion for entry into SNF network was clear, no mention of patient outcome for length of stay. Risk adjustment and readmission rates calculated for in network participants. No mention of other contractual elements required to improve outcomes for admitted patients						unclear	Scoring based on public and SNF reported data	40 SNFs that applied to the collaborative in Year 1, 82 (59% of applicants) met the initial criteria, and 47 (34% of applicants) met the secondary criteria. These 47 SNFs represented 34% of PHS discharges to SNFs in the second quarter of fiscal year 2013.

Ouslander 2014	Lisa		no formal study performed			high - primary intent was recommendation of transfer assessment tool for SNF patients transferred from hospitals			high		Tool example in publication for use - no study of outcomes
Maly 2012	Lisa		Scoring on LVHM Partnership	high		low - the volume of LVHN patients discharged to a particular SNF and the SNF's readmission rate were calculated using LVHN admission and discharge data and evaluation was evaluated as a - Rate of readmission to an LVHN hospital within 30 days of the initial inpatient discharge - determined to be a"meta metric,"indicating the SNF's immediate ability to care for the patient after discharge, the overall quality of the patient;4 placement, and the SNF physician's comfort with the aptitude of the facility's nursing and clinical practice staff	low - also looked at discharge scoring from hospital setting - patient discharge destination volume was recognized asa critical component to SNF alignment, this variable was assigned thegreatest weighting. All skilled nursing facilities were ranked in des-cending order by volume of patients discharged to the SNF in FY10.Facilities ranking as the top 5 discharge destinations received the full20 points available.		low		Roughly 70% of LVHN patients who required skilled nursing care following their inpatient stay received care at one of 20 SNFs. On further analysis, authors discovered that several of these 20 facilities were affiliated with larger organizations, thereby allowing our collaborative efforts to be further concentrated. The SNFs listed in Quadrant I of Figure 2 identify the Tier 1 Facilities that LVHN prioritized for its alignment efforts. These facilities received a large number of LVHN patients in FY10 and performed well in both quality and readiness for collaboration
Bilimoria 2012	Lisa	high	no outcome measured							Not a formal study design - perspective paper	
Ackerly 2014	Lisa		no formal study				high		high	Not a formal study design - perspective paper - discussed readmissions and length of stay	
Devore 2011	Lisa	high	no formal study						high	Proposed ACO quality metrics	
McWilliams 2017	Lisa		retrospective cohort amalysis of post acute spending		high - This study looked at contracting and spending on post acute services as the definition of a contract between the ACO and CMS - -- not between ACO and SNF			high - the study did not address contractual elements important to ACO affiliation with a SNF			A study using fee-for-service Medicare claims found that, for accountable care organizations entering in 2012, participation in the Medicare Shared Savings Program was associated with a 9% differential reduction in postacute spending by 2014, driven by reductions in discharges to facilities, length of facility stays, and acute inpatient care. Reductions were smaller for later entrants and similar for accountable care organizations with and without financial ties to hospitals

APPENDIX C: KEY INFORMANT INTERVIEW GUIDES

Note: *The guides outlined herein are pending approval from the University of North Carolina Institutional Review Board.*

General Introduction for Population Health Administrators/ACO Leadership, Policy Makers, and SNF Regulators

We are conducting a research study looking at barriers and facilitators affecting contract agreements between accountable care organizations (ACOs) and skilled nursing facilities (SNFs). The basic research question is looking to address whether there is an association between the presence or absence of an ACO contract with an admitting SNF, and if a contract is in place between an ACO and a SNF, whether there specific processes in place that influence a second set of variables (readmission rate, ED utilization, and LOS). Participation in this interview is voluntary, and you may decline to answer any or all questions or you may end the interview at any time.

The key informant interviews will also help us to learn more about how population health leaders and administrators and policy makers/regulators perceive the risks and benefits of post-acute care contracting. The key informant interviews will also help understand some of the practical and operational issues affecting ACO/SNF contracts.

We would like to understand the circumstances and relationships that facilitate or hinder participation in a contractual agreement. The interviews should take between 45 minutes to an hour.

The interviews will be completely confidential. Your name or the name of your organization will not be used in any study report, final report, or publications. Once the data have been compiled, all identifying information associated with your answers will be removed.

With your permission, we would like to record our interview. This would ensure that none of your important insights are missed. The audiotape will not have any names on it (only an identifier code) and will be kept in a secure location. Tapes and transcriptions will be destroyed at the end of the study. Do I have your permission to start the recorder?

Before we begin, do you have any questions about the study or the interview? (Yes/No) (If yes, please list.)

Population Health Administrators/ACO Leadership Interview Guide

Introduction

- Can you please describe your role in your organization? How long have you been in this role?
- What motivated you to participate in today's interview?

Risks and Benefits

- What benefits do you think there are to establishing relationships between ACOs and SNFs?
- Do you have any concerns about creating a post-acute network between the ACO and community SNFs? If so, what are they? Do you think there are any facilitators? If so, please describe.
- What risks do you think there are to creating contractual relationships between ACOs and SNFs?
- What are some of the organizational burdens to creating contractual relationships between ACOs and SNFs?
- What do you consider the most important elements to include in a contractual relationship between ACO and SNF? Can you please tell me why?

ACO Processes

- Is there an existing structure in place within your ACO to track patients who are admitted to a SNF? If yes, please describe.
- Are there specific processes that the ACO may have in place today that you feel make a difference to patient care within a SNF? Are there processes you would like to see in place in the future? Please describe.
- What do you believe are the most important indicators of quality for patients admitted to a SNF?
- Please describe your current SNF/ACO Network and how you define your preferred SNF partners.
- Is there a contractual arrangement in place for preferred SNF partners and what are the key service elements?

Barriers and Facilitators

- What motivates an ACO to initiate a contract with a SNF?
- What do you think would motivate a SNF to initiate a contract with an ACO?
- What are the main barriers for ACOs to establishing a contractual relationship with a SNF?
- What do you think are the main barriers for SNFs to establishing a contractual relationship with an ACO?

Programmatic Considerations

- What can be done to facilitate ACOs and SNFs to create contractual relationships?
- What can be done by the ACO to facilitate improved quality in SNFs?

- What can be done to make sure that ACO/SNF contract and process elements are effectively implemented?
- What can be done to make sure that ACO/SNF contracts are implemented in an ethical way?
- Should there be financial incentives incorporated into ACO/SNF contracts? (Yes/No) (If yes, please detail why.)
- What kind of support is needed for ACOs wanting to create post-acute networks?
- What education is needed for clinicians about ACO/SNF relationships?
- What education is needed for patients about ACO/SNF relationships?

Population Health Leadership/ACO Administrator's Roles and Responsibilities

- What do you believe is the role of ACO leadership in the creation of post-acute networks?
- What are some of the policy challenges necessary to create contractual relationships between ACOs and SNFs?
- What do you consider the most important elements for ACOs to include in a contractual relationship between ACO and SNF? Can you please tell us why?

Wrap Up and Closing

- Would you like to add anything or make additional comments?

Thank you for taking the time to answer these questions. Your participation in this interview greatly contributes to the research project and to increasing our understanding around the issues affecting contracting between ACOs and SNFs. Your answers will be compiled with the answers of all other interviewees. Please feel free to contact us at anytime if you have any questions about this interview or the research project.

Policy Makers and SNF Regulators Interview Guide

Introduction

- Can you please state your name and your role in your organization? How long have you been in this role?
- What motivated you to participate in today's interview?
- Can you please tell me about your history of participating in post-acute care leadership?
- Can you please tell me about your history of working with ACOs? (Probe for details)

Risks and Benefits

- Do you have any concerns about creating a post-acute network between the ACO and community SNFs? If so, what are they?
- What benefits do you think there are to establishing relationships between ACOs and SNFs?
- What risks do you think there are to creating contractual relationships between ACOs and SNFs?
- What are some of the organizational burdens to creating contractual relationships between ACOs and SNFs?
- What do you consider the most important elements to include in a contractual relationship between ACO and SNF? Can you please tell me more?
- What factors are important to consider for ACOs and SNFs wanting to partner?

SNF/ACO Processes

- Are there specific processes that an ACO may have in place today that you feel make a difference to patient care within a SNF? Are there processes you would like to see in place in the future? Please describe.
- What do you believe are the most important indicators of quality for patients admitted to a SNF?
- Is there a contractual arrangement in place for preferred SNF partners with local ACOs and what are the key service elements?

Barriers and Facilitators

- What do you think motivates an ACO to initiate a contract with a SNF?
- What motivates a SNF to initiate a contract with an ACO?
- What do you think are the main barriers for ACOs to establishing a contractual relationship?
- What are the main barriers for SNFs to establishing a contractual relationship?

Programmatic Considerations

- What can be done to facilitate ACOs and SNFs to create contractual relationships?
- What can be done by the ACO to facilitate improved quality in SNFs?
- What can be done to make sure that ACO/SNF contractual and operational process components are effectively implemented?
- What can be done to make sure that ACO/SNF contracts are implemented in an ethical way?
- Should there be financial incentives incorporated into ACO/SNF contracts? (Yes/No) (If yes, please detail why.)

- What education is needed for clinicians about ACO/SNF relationships?
- What education is needed for patients about ACO/SNF relationships?

Policy Makers Roles and Responsibilities

- What do you believe is the role of policy makers (such as the Center for Medicare and Medicaid Innovation) in contractual relationships between ACOs and SNFs?
- Are there any contract components that you consider unethical?

Wrap Up and Closing

- Would you like to add anything or make additional comments?
- Can you please provide names and titles of others in your organization who we should speak with?

Thank you for taking the time to answer these questions. Your participation in this interview greatly contributes to this research project and to increasing our understanding around the issues affecting contracting between ACOs and SNFs. Your answers will be compiled with the answers of all other interviewees. Please feel free to contact us at anytime if you have any questions about this interview or the research project.

Addendum to Interview Guides: List of Possible Probes

- Can you please expand a little on this?
- Can you please explain what you mean?
- Can you please tell us more?
- Can you please give more detail around the operational process and workflow?
- Can you please give us some examples?

APPENDIX D: COMPREHENSIVE CODE BOOK

Benefits of PAC Contracting
Patients and Families
SNF Benefits
Community SNF Type (CCRC, Swing, AL, SNF)
Swing Bed use in ACO network
Contract Facilitators
Data
Maturity, Bundles Experience
People
KII ORG Role
PAC Contract Criteria
Critical Metrics
PAC Network Components
PAC Network Implementation
Organizational Burdens
Patient and Family Education
Patient & Family Education
Physician Engagement in PAC Network
Physician Education
Quality in the SNF
CMS Stars
Data
Education
People
Risks of ACO SNF Contracting
Barriers
education
Financial + resources
Process
Risk Adjustment - Patient selectivity
SNF Partner Scoring or Management
SNF Partnership Management
Data
education
Ethics
Financial Incentives
Role of ACO Leadership
Role of Policy
SNF Evaluation Criteria for Partnership
Timing

Abbreviations: KII, key informant interview; PAC, post-acute care.

APPENDIX E: DATA DICTIONARY FOR POST-ACUTE COST AND UTILIZATION REPORTING

Data Dictionary

Claims Incurred January 2018 through September 2018, Paid through November 2018
Cost & Utilization Report
Population: Attributed Members Excluding Non-Datashare Beneficiaries

Metric	Definition
Hospital Inpatient	Admits, Days, and total Paid related to Part A facility claims for Short-Stay, Long-Stay, SNF, Rehab and Psychiatric facilities
Hospital Outpatient	Procedures, Visits, and total Paid for Part A facility claims related to outpatient services
Physician	Procedures and total Paid for Part B professional claims for services rendered by physicians
Ancillary	Visits, Units, and total Paid for Home Health, Hospice, Ambulance, Vision, and DME services
Ambulance Mileage	Units billed for ambulance codes A0425, A0435, A0436
Ambulance Rides	Units billed for ambulance codes excluding A0425, A0435, A0436
Avoidable ER %	ER Visits where either the facility or professional claim indicates a diagnosis categorized as "Non-Emergent" or "ED Care Needed- Preventable/Avoidable" by the NYU ED Algorithm
Case-Mix Group	Weighting based on the Case-Mix Group assigned to the IP Rehab admissions
CMG-Adjusted Paid/Admit	Paid/Admit divided by the Case-Mix Group weight
CMI	Case-Mix Index. Average DRG weighting of all admissions based on MS-DRG V34
CMI-Adjustmed Paid/Admit	Paid/Admit adjusted for the Case-Mix Idenx
Eligible IP Discharge	Inpatient discharges, excluding those ending in death, left against medical advice, and transfers to other IP Acute facilities, used in the calculation of PAC discharge rates
ER Admit %	Percentage of Inpatient Admits occurring through the Emergency Department
ER Visits	Distinct visits to an Emergency department based on Part A outpatient and Part B professional claims for ER services
ER Visits / 100 Days	ER Visits occurring for beneficiaries during their SNF stay, calculated for every 100 beneficiary days
Home Health Encounters	Distinct episodes of home health billed under either Part A or Part B
Home Health Recertification	Distinct episodes of home health indicating that beneficiary is still a patient
Home Health Transfer	Percent of SNF/IRF discharges beginning a home health episode within 0-3 days of discharge
Hospice Encounters	Distinct episodes of hospice care billed under either Part A or Part B
IP Re-admit Rate	Percentage of SNF/IRF admits that are admitted back to an IP Acute facility within 2-30 days of discharge from the SNF/IRF
IP Rehab Admit	Part A facility claims for an Inpatient Rehab admission as designated by revenue code 0024
IP Transfer Rate	Percentage of SNF/IRF admits that are admitted directly back to an IP Acute facility wihtin 0-1 days of discharge from the SNF/IRF
Long-Term Hospital	Part A facility claims for hospitals with a taxonomy of 282E00000X
PAC Discharge Rate	Rate of discharge to post-acute care (PAC) for eligible IP discharges
PCP Visit	Primary care service rendered by a primary care physician, as defined by CMS in the EXP reporting
PMPM	Paid per beneficiary per month based on track eligibility requirements
Prior Proximal DRG	Case-Mix Index of the most recent IP stay to the SNF/IRF admission within the preceding 30 days
Re-Admit Rate	Re-admissions to Inpatient Acute facilities, excluding planned readmissions. Based on the CMS 30-Day All Cause Readmission rate
Risk Score	Member risk scores are internally calculated based on the CMS HCC model for the most recent twelve months
Short-Stay Transfer Rate	Percentage of IP transfers ocurring within 0-3 days of admission to the SNF/IRF
Short-Term Hospital	Part A facility claims for hospitals with a CCN between 0001-0879 or 1300-1399
SNF Admit	Part A facility claim for a Skilled Nursing Facility admission as designated by bill types 21X,22X or revenue code 0022
Specialist Visit	Primary care service rendered by a specialist physician, as defined by CMS in the EXP reporting
Ultra Admit %	Percent of SNF admits with the majority of days billed at an Ultra Resource Utilization Group (RUG)
Utilization/1,000	Units per 1,000 person-years
SNF	Skilled Nursing Facility
IRF	Inpatient Rehab Facility
HH	Home Health
HPC	Hospice / Palliative Care
LTAC	Long-Term Acute Care Hospital

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